Southwestern Medicine

OFFICIAL ORGAN OF
ARIZONA STATE MEDICAL ASSOCIATION
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
NEW MEXICO MEDICAL SOCIETY
THE SOUTHWESTERN MEDICAL ASSOCIATION

Vol. XXII. EL PASO, TEXAS, MAY, 1938 No. 5

Medical Progress and Its Significance*

HAL W. RICE M. D.
Bisbee, Arizona

WHEN one develops fixed opinions regarding his professional work, his progressive work ceases. Never before in medical history has it been so essential to maintain an open, alert and critical mind and to be ready to admit that one's previous conclusions have been disproved in the light of more recent knowledge.

At the beginning of this century, radio and the aeroplane were still their inventors' dream; the motion picture industry was a tottering infant, even electric lighting and the telephone were far from being in universal use and automotive transportation was considered more hazardous than practical. Yet now all of these and more are deemed necessities according to existing standards of living. The medical profession is chiefly concerned with protecting and preserving the life and health necessary for appreciation and enjoyment of all the benefits accruing to humanity in these enlightened times. A natural question is, "Has Medical Science kept pace with the general advance?"

It is well known that from the beginning of recorded history, progress in the science and art of medicine has been especially hindered by prevailing superstitions and religious persecution. During centuries that witnessed the creation of works of art of science and of literature which are still unexcelled, all efforts to obtain a basic knowledge of the human body and its functions were punished both by church and civil law. Such conditions obtained with varying degrees of prohibition well into the 19th century.

Modern medicine can be truly said to be established for only about 75 years. At the time of our Civil War, the physician and surgeon had no clinical thermometer, no hypodermic syringe, only a few a stethoscope, or even watch with second hand for pulse-taking. What sort of clinical picture of any disease without temperature and pulse records? And how much therapy today without resort whatever to hypodermic medication, hypodermoclysis, intravenous infusion and transfusion? But the choicest gift to medicine of the past century was none of these but the compound microscope. The simple microscope had been known since about 1600 A. D., but was so imperfect to be considered little more than a toy. In the latter half of the past century the combined efforts of Cavalier Lister, Abbe, and others resulted in producing an improved compound microscope, complete with oil immersion by 1878, and new vistas in the living world of bacteriology could be explored. The door was then also opened to the virgin territories of histology, and pathology fundamental sciences in the knowledge of disease. There is little doubt that the microscope has been the greatest single factor in raising medicine from the vaguely theoretical to a truly scientific basis.

We have had the x-ray but for a generation. Acquired from the great physicist Roentgen, how avidly it was seized by the medical profession and developed to a usefulness far beyond the imagination of its discoverer. At first only a diagnostic aid, it has now become the final word in diagnosis in many conditions, as well as a powerful therapeutic agent. Radium, too, is a still more recent and indispensable acquisition. To those martyrs who were maimed and even lost their lives in their devotion to the x-rays, radium and radio-therapy, our debt though realized, can never be paid.

Modern surgery may be said to have begun about 25 years later than modern medicine, that is, in the 1880's. Anesthetics, it is true, had been in common use for some time but infection was an almost insurmountable barrier to surgical advance. Miasma, atmosphere-borne, was believed the causative factor of infection, and "laudable pus" not only the expected thing but generally condoned. Surgery on the body surfaces and of the extremities was undertaken with impunity but the body cavities, abdominal, chest and cranial, were practically left alone because of mortality due to infection. Confirmation of the "germ theory" of disease by the newly acquired microscope rapidly led to development of antisectic and aseptic technique, crude at first, but practical in that it made possible real surgical progress, and the history of modern surgery began a little more than fifty years ago.

The medical graduate of 1900 is seen entering on his career with an altogether truer perception of disease than his physician-father could have known. He at least can take the patient's temperature and

*Presidential Address, Arizona State Medical Association, Tucson, April 21, 1938.

pulse and he has proved Koch's laws: that specific infective diseases are due to specific bacteria. He is aware that surgery has become highly practical; that operations of increasing magnitude can be safely performed and new surgical fields investigated because of less danger of infection and better knowledge of anesthesia. But he has only read of the x-ray as a diagnostic aid, has probably never seen one. He has never heard of radium. He has knowledge of the gonococcus and its propensities but none whatever of its well-known social partner, the spirochaeta pallida. Although the B. typhosus and the pneumococcus were described in his textbooks, neither he nor his professor had yet conceived of the multiplicity of associated "para-s" and types that even now confuse the picture of these diseases. Of instruments of precision he had no sphygmomanometer, nor electrocardiograph; no basal metabolism tester. He had been taught nothing of vaccines, of polyvalent sera, nor would he learn for years about hormones and international units. He treated his luetic cases solely with the time-proven mercury and iodides, but without the aid of the Wasserman, guessed largely at the diagnosis of syphilis.

Food poisoning of all sorts was then called "ptomaine," little knowledge of the role of B. botulinis being held. Tularemia was not to be identified for years, nor poliomyelitis, nor encephalitis, and it was still more years before the complexity of Malta fever was to be simplified by discovery of Bacillus abortus and Brucellis suis and the more comprehensive name, undulant fever, supplied.

That 1900 graduate had plenty of materia medica for treatment, yet had heard nothing of hydrogen-ion concentration, acidosis or alkalosis. Chemistry was then chiefly analytical. Today medical chemistry is increasingly synthetic with resulting new organic compounds almost without number; the essentials of many diagnostic tests as well as of a new therapeutics which is fast minimizing the importance of the materia medica of a generation ago. Colloid chemistry still in its infancy, represents an advance in treatment known for less than 25 years. Chemotherapy with all its important place in modern medicine is a triumph of this century. The salvarsan products are doubtless the outstanding accomplishment in this field, not an accidental discovery, but made by the well-planned research of Ehrlich, founder of the science of chemotherapy. Mercurochrome, gentian-violet and other dyes, and now sulfanilamide belong in this category. Also, dyes which chemistry has developed for staining tissue cells have increased our knowledge more than we, who have followed discovery of these methods, can readily appreciate.

Our present generation has seen the correct classification of diseases long known, but not previously named or understood. The patient complaining of "hives" following the eating of lobster or strawberries, was told he had an "idiocyncrasy." For more than 30 years this too illusive word has been replaced by the term "allergy." The concept of sensitization is being forever widened until not only such disturbances as asthma, hay fever, and urticaria are attributed to allergy, but even some of the phenomena of infectious diseases, that is, our resistance and reactions to the same, are now shown to be allergic in nature.

Early in this century the English physiologists, Bayliss and Starling, brought forth and proved the idea of hormones. The important activity of ductless glands is one of the most vital discoveries ever made, and is being explained through demonstrations of their hormones. Insulin, pituitrin, adrenalin, thyroxin, the sex hormones and others have not only been isolated but some even synthesized. What would modern medicine be without them—yet they were scarcely suspected only a few years past. Pre-eminent among therapeutic measures of the past few years are the liver treatment of pernicious anemia and the insulin treatment of diabetes. How many, many thousands enjoying relatively good health today owe their very lives to these discoveries of Minot and Banting is hard to calculate.

For hundreds of years scurvy was recognized as a disease found in certain cases of restricted feeding; also rickets was vaguely classified as a nutritional disturbance. But the name "vitamin", unknown 25 years ago, is now indeed a word to conjure with. These indispensible substances, at first existing only hypothetically, have begun to be produced in pure form in commercial quantities. Beriberi and other types of polyneuritis have been definitely classified with scurvy and rickets as belonging with the deficiency diseases.

Since 1900 the *most notable advances in surgery* are probably seen in the fields of thyroid, brain and nervous system—and especially *collapse therapy for pulmonary tuberculosis*. In the first third of this century the incidence of tuberculosis has been reduced 66⅔%. Splinting of the diseased lung by the surigcal procedure of collapsing it, has been put on its present workable and highly successful basis within the present decade.

More progress has been made along the line of *anesthesia* than in surgery itself in the past ten years. Local anesthesia has developed unsuspected possibilities since cocaine has been supplanted in operative work by the safer procaine and its chemical allies. Spinal anesthesia is fast assuming the important position it deserves. Nitrous oxide, always since its discovery one of the best of general anesthetics, is giving ground surely and for good reason to ethylene and cyclopropane, and there are constantly occurring more cases in which rectal or intravenous anesthesia is the method of choice.

The *outstanding medical achievement* of this generation has been the development of Preventive Medicine. Many of us present have witnessed the passing of typhoid fever, so that instead of being, as we can recall, one of the most frightful scourges we had to combat, it has now become a clinical curi-

osity! The conquest of typhoid is probably the major accomplishment of preventive medicine. Also, therapeutic and prophylactic immunization against diphtheria, most dread of infectious diseases of childhood, is now so successful that it can be truly said today when a child dies of diphtheria: "Someone, somewhere, has failed in his duty." Whooping cough and scarlet fever have even more recently been added to the list of diseases preventable by specific therapy.

An important development of preventive medicine in this century has been the *identification of occupational diseases.* Lead poisoning, phosphorus poisoning, radium poisoning, mercury poisoning, have all been recognized as industrial hazards. In this mining state of Arizona, silicosis is the industrial disease which demands and receives greatest consideration. Too much stress can hardly be placed on occupational diseases because for one thing, of the growing legal responsibility involved. Half the states in the union already have laws concerned solely with this responsibility.

Coupled with the idea of preventive medicine is another contribution of the last generation, namely, *the concept of focal infection.* For more than a century a few medical writers had noted that carious teeth seemed to be connected with "diseases at a distance." But it was not until Frank Billings and his associates conclusively demonstrated the significance of foci of infection in causation of certain systemic diseases that the subject was given the consideration warranted. It is true that many "oral and other isms have been committed in the name of this famous Chicago Doctrine", but as it is better understood, benefits in the knowledge and treatment of many diseases will greatly outweigh those sins.

The foregoing is only a glimpse of highlights of progress made in modern medicine. *Most significant result to humanity* has been the almost unbelievable increase in expectancy of life occurring in this twentieth century—from about 49 years in 1900 to 61 years today. True, this has been due more to saving of young life than to extension of old age, but if life-expectancy has already been increased by 25% in a third of a century, it is entirely possible that, within a generation or so, longevity will be the rule rather than the expectation.

Regarding the medical profession itself, the *facts of prime significance* for which the progress of modern medicine is responsible seem to me to be five in number:

1. The necessity for a longer period of training with consequent increased cost of medical education. Our 1900 graduate was not required to have pre-medical schooling beyond High School, could even graduate from some medical schools in three years. Nor did he have to serve an interneship before being granted his diploma. The outlay of time and money was appreciably less then than now.

2. The call for more specialization due to the constantly widenng borders of medical knowledge.

3. The rising cost of medical service. Of this it needs only to be said that even though he now may pay more for medical care than a generation ago, the patient should and does receive today a great deal more for his money.

4. A fourth notable fact is that this seemingly remarkable progress in medical science shows the way to still more and quite conceivably greater things to come. Cancer and the "degenerative diseases" which at present head the list of causes of death are far from being solved. What the future will bring to light in the fields of chemistry biochemistry, psychotherapy, allergy, and endocrinology for instance, can be today no more than a matter of conjecture, but the possibilities seem to be limitless.

5. And last, but by no means least in significance, is the growing need for the modern doctor of medicine to keep up to date. For the rank and file of medical men keeping abreast of such kaleidoscopic changes is a serious problem. Insomuch as the slogan of scientific research in "Progress" the watchword of us who follow must be "Study." This can only mean daily application of time and effort in the assimilation of at least the fundamental developments.

And here I believe organized medicine has one great obligation to fulfill, which is to bring postgraduate work to its members, making it easier for them to keep posted as to essentials in progress. This now is being done by the stimulating activity of the A. M. A. and especially by its State and County branches; by such teaching centers as clinics hospitals, and medical schools where postgraduate courses are featured; and also by the establishment and maintenance of strictly up-to-date medical libraries throughout the country.

A second duty of organized medicine has to do with informing the public concerning what progress is being made, and what that progressive work is accomplishing for the general good. With such facts before them, the dangers of charlatanism and quackery are more easily recognzed and dependable medical services more readily sought.

Through the press and from the platform we are being daily made aware of a new movement arising in America these past few years that of socialism in many things, even in medicine. In our country the wealthy and the very poor can always receive the best of available medical attention—service which is hard for many of the middle classes (forming the bulk of our population) to obtain. These either will not accept charity, or cannot be admitted to charitable institutions, and find the cost of medical care difficult to meet. This constitutes a real economic problem which we believe can and will be worked out satisfactorily in due time, advantageously to all, without the socialization of medicine.

The Treatment of Tuberculosis of the Upper Extremity

A. STEINDLER, M. D.*
Iowa City, Iowa

THE pathologist considers skeletal tuberculosis as an established entity. It follows a cycle of development which varies in no essential detail with the different localizations. The clinician, however, must recognize certain important features which distinguish the tuberculosis of the upper extremity from that of the lower.

First of all, compared with the lower, tuberculosis of the upper extremity is rare. The ratio is about 1:7. In our series, about seventy against five hundred lower extremity cases, or 1:9. Secondly, in contrast to that of the lower, upper extremity tuberculosis favors decidedly the periods of adult life, and is much less prevalent in childhood and adolescence. Possibly the fact that we have to deal with a non-weight bearing member makes the situation different; also, the fact that the upper extremity is comparatively less exposed to traumatism.. In spite of a far-reaching parallelism between tuberculosis of the shoulder and that of the hip, between tuberculous elbow and knee there are great discrepancies in the clinical mechanism of dissemination. Why should the tuberculosis of the childhood prefer the lower extremities and the spine for its dissemination, and why is it that the severer form of adult tuberculosis disseminates so often into the joints of the upper extremity? It has been claimed that the joints of the upper extremity are not as much exposed to traumatism as those of the lower, but the relation of trauma to join ttuberculosis is problematic and, strictly speaking, trauma plays no role in the causation of the disease itself, though it may light up the already existing and quiescent disease. We know that tuberculosis may exist indefinitely within the bone marrow without involving the joints, and this may explain the long quiescence of tuberculosis in the upper extremity joints and the prevalence of this location of tuberculosis in adolescence and adult age. But this again is no satisfactory explanation for the clinical differences existing between the extremities. All we can say is, that upper extremity tuberculosis is, on the whole, less benign, more destructive, and follows in general lines the more severe course of tuberculous metastases of the adult age.

I. TUBERCULOSIS OF THE SHOULDER

On the whole, it is a rare condition. The ratio between adult and child is as 4:1, with the highest frequency between forty and fifty years. In our series of twenty cases of tuberculosis of the shoulder only two were under fifteen, one case eight and one eleven.

(Pathogenesis:) For the tuberculosis of the shoulder the synovial bursa of the biceps which extends into the inter-tuberculous groove is of greatest importance, because this is the favorite seat of tuberculous granulation which destroys the articular cartilage and will produce subchondral erosion.

(Pathology:) From the pathological point of view we distinguish two types: The fungus synovial type which involves about one-fourth of the cases, and the primary osseous type. The latter type, again, is divided into the so-called caries sicca which is associated with dry destruction of the cartilage and the underlying bone, having its primary focus in the head of the humerus or in the anatomical neck. The other group is the fungus type of osseous tuberculosis which is associated with proliferation of tuberculous granulation tissue which finally melts down and leads to the formation of abscesses.

The caries sicca always starts from the intertubercular sulcus, destroys the tendon and gradually erodes the head. It is characterized by the absence of swelling and by atrophy of the surrounding musculature, so that the acromion becomes sharply projected, as well as the coracoid process. This is the type that might end in slow ankylosis which is mostly of fibrous character.

In contrast to this, the fungus type is proliferative, and it produces a marked swelling of the joint perforation of the joint capsule, and sinus formations which often lead to the axilla. These formations melt down rapidly, leading to large accumulations of debris and abscess material.

Real extra- and inter-articular foci in the tubercule are rare. So is also the primary disease of the glenoid fossa. Seven of our cases were of the fungus type and thirteen of the type of caries sicca. Only one case showed an isolated cystic lesion in the head of the humerus.

For the prognosis and the treatment these are points of great significance. The prognosis on the whole depends upon the pulmonary findings. We find these positive in about 40 per cent of the cases, which signifies the loss of general immunity. On the other hand, this disadvantage is to some extent made up by the frequency of the more benign dry type of tuberculosis. Some observers believe there is no sharp division between the sicca and the fungus type, and that the former represents a state of repair. There is no doubt that in many of the cases the disease goes on without particular swelling and without formation of articular abscesses, so that at operation the joint is found comparatively empty.

On the other hand, in the fungus cases abscess formation is frequent; 35 per cent according to Konig. And, here again, these abscesses take long devious routes which makes the treatment difficult

---

Read before the Southwestern Medical Association Phoenix, Arizona, November 18, 1937.

*Professor Orthopedic Surgery, State University of Iowa.

They may enter the bicipital groove of the humerus, and from there they may break down into the deltoid bursa, or appear in the supraspinatus fossa, and, finally, they may appear in the axilla.

Again, on the other hand, the dry form inclines to ankylosis, and ankylosis is a favorable feature; in fact, the one desirable outcome in the course of the disease.

The treatment, therefore, should be conservative only in young individuals and the mildest cases. In one adult operation was advised but refused, the patient returning after four months stating that the shoulder was much better and he had gone back to work. This patient was treated by an abduction splint and by general supportive treatment.

Incision and drainage for abscess will produce temporary improvement but recurrences are almost certain. (In one case where incision and drainage was performed a cloaque was found in the neck of the femur. A piece of cortex was removed, granulation tissue encountered, which was also present in the sheath of the biceps. In this case, after two years and three months' observation the sinuses were healed and the process evidently had come to a standstill. No doubt, this case was a purely osseous form of tuberculosis. As a rule however, incision and drainage will prove inadequate.)

Resection may be carried out in advanced cases with a great deal of destruction of both head and glenoid cavity, and where there is little expectation to obtain a solid fusion. In almost all of the adult cases the operation of choice is the operative fusion of the joint. It is very important that such operation should be undertaken while it is still possible to obtain its desired effect. In our series, five cases were fused and all of them had a favorable result, the time of observation varying from one to three years. The joint is opened by a curved incision, encircling the acromion, and a portion of the acromion is removed in order to gain access to the glenoid cavity. The head is, in general, denuded of cartilage, and so is also the under surface of the acromion. The head is fixed into position and held by chromic catgut by drill hole suture. The arm is placed in a position of about 30 degrees to 50 degrees abduction and forward flexion. Retention in a plaster cast is maintained for one year or until definite fusion is obtained, as shown in the x-ray picture.

On the whole, all the adult cases and all except localized cases in children, all all cases with abscesses or sinuses should be fused or resected.

The End Results: The conservative treatment gives satisfactory results in suitable cases (2). But the best results were undoubtedly obtained by the fusion operation (5). In all these cases there was good solid fusion, with a more or less painless shoulder, and a fair range of motion in the arcromio-clavicular and the sterno-clavicular articulations, and no sinuses. All in all, we believe that the fusion operation is the most adequate procedure provided that the operation is performed at the proper time, that is, before the greater amount of destruction of bone and melting down of tuberculous tissue.

II. TUBERCULOSIS OF THE ELBOW.

Of all the joints of the upper extremity, tuberculosis of the elbow seems to be most frequent. It occupies sixth place in the locations of skeletal tuberculosis. Similarly as in the shoulder, the adult age is preponderant; one-third of the cases are children, the maximum is seen in the third decade. But there are numerous cases to be seen between forty and seventy. In our own series only two cases were fifteen or under.

There are two types: The primary synovial, particularly seen in children, according to Konig, 29 per cent. It is characterized by hydrops with fibrinous exudate, rice bodies, and villi.

The second type, again, is the osseous type, 71 per cent according to Konig, which again may be divided, first, in the rather rare caries sicca, analogous to the caries sicca in the shoulder; and, secondly, the primary osseous fungus type, the latter being associated by caseation, breaking down of tubercular tissue, abscess formation, and sinuses. In our series of nineteen cases, two seemed to be primary synovial, five belonged to the osseous type of caries sicca, ten to the osseous fungus group.

In 47 per cent of the cases the humerus is the primary seat of the disease; at the elbow particularly the olecranon fossa is the most frequent primary localization. The prognosis again depends upon the complications, and other skeletal localizations are not infrequent. In our series, at least nine cases of the nineteen had such complications. Most frequent is pulmonary tuberculosis and also tuberculosis of the spine combined with pulmonary, tuberculosis of the spine with involvement of wrist and tarsus. Naturally, such complications greatly aggravate the prognosis and jeopardize the results of treatment. Of the local complications, the abscess formation is the most ominous, and seen in 35 per cent of the cases. These abscesses may appear around the triceps or around the head of the radius. The more advanced cases naturally show a more generalized destruction. The outlook for life is generally favorable, but there are some exceptions in those cases in which there is a multiplicity of lesions and where the constitutional resistence of the individual is low.

The ultimate function depends upon the reparative ability of the particular case and is dependent largely upon the nature and type of tuberculosis and the age of the patient.

In children the regenerability is much greater than in adults, and even osseous cases with considerable destruction may end with full mobility. Fifty per cent of the synovial cases and 10 per cent of the severer fungus cases heal with full mobility in

children, according to Kremer and Wiese. In the osseous type, with an extra-articular focus, fully 90 per cent heal with full mobility.

In the adult, however, only in purely synovial cases, or in cases with small extra-articular foci may one expect ultimate mobility. This, of course, embraces a very small minority of cases; all severer cases ultimately end up with loss of function and rigidity.

Consequently, the treatment should be conservative in children, and it may be tentatively conservative in adults, but it must always be associated with rigid general treatment of heliotherapy and supportive dietary regime. X-ray, iodoform injections, passive hyperemia are still very uncertain in effect. The main feature of the conservative treatment is always the immobilization in right-angle position, between pro- and supination. Nine cases of our series were treated by conservative treatment alone.

Mobilizing measures should be undertaken only after all active signs have disappeared: this implies not only absence of clinical signs and definite evidence of arrest of the tuberculous process in the x-ray but also means that an amount of natural free motion is at hand. Even then, all mobilizing exercises must be undertaken with the greatest possible care, as any brisk movement is liable to cause a reactivation of the tubercular focus. As a rule, it would be safer to restrict all mobilizing attempts to active exercises and to avoid all passive manipulations.

All adult cases and many of the juvenile cases with extensive destruction must be operated upon. The ideal procedure would be the entire removal of the tuberculous focus. But extra-articular foci are rare since they rarely give clinical symptoms.

Arthrotomy with removal of the joint lining is an entirely inadequate procedure.

According to the general principles which apply to the osseous type of tuberculosis, we believe that the most rational treatment is the fusion of the elbow joint in a suitable position. In the first place, fusion presupposes a rather early interference, that is, before there is extreme destruction of the bone constituents, and, in the second place, the fusion offers the only conditions in which there is a reasonable assurance of permanent cure.

Resection of the elbow is the operation for the severer types of tuberculosis. Since it must be carried out radically it carries the disadvantage of a flail joint, the future of which is somewhat uncertain in contrast to the fusion which gives a stable member and a better guarantee against recurrence.

Amputation is carried out only under vital indication. We did this in one case which was complicated with an extensive skin tuberculosis, in a man of seventy with poor general health.

The End Results: We cannot speak of the end results before the elapse of two years at least. Eliminating all cases of amputation, we have eighteen cases, of which seven were treated conservatively and the others all operatively by arthrotomy, resection, or fusion. One case was amputated. The best end results are obtained by fusion operation performed in suitable cases, that is, in those which had not progressed too far. Three of these showed good results during the time of observation and in one case in which there were sinuses the latter closed. As a rule, however, one should do the fusion before the establishment of the sinuses.

III. TUBERCULOSIS OF THE WRIST

This localization is neither infrequent nor is it common place. The incidence is about 3.73 per cent of skeletal tuberculosis; our own statistics on twenty-four cases give a frequency of 2.4 per cent. Generally, it is a disease of the adult age; at least, among our twenty-four only one was a case of juvenile articular tuberculosis. Among the joints of the upper extremity it is more frequent than tuberculosis of the shoulder and less frequent than that of the elbow. It shares with the shoulder and the elbow the frequency of combination with other surgical tuberculosis (29 per cent in our cases). In ten cases, or 41 per cent, active pulmonary tuberculosis was observed at least at some time during the observation period. This high incidence of pulmonary tuberculosis again explains the fact that tuberculosis of the wrist is so prevalent in the later decades. The pathological type of tuberculosis of the wrist has some bearing upon the prognosis. The infiltrating and fungus types prevail very definitely over the dry and fibrous type of tuberculosis, contrasting in this feature with the tuberculosis of the shoulder. In tuberculosis of the wrist there is no tendency to early self-limitation or spontaneous termination. On the contrary, there is a definite tendency for the tuberculosis to start in one or more of the carpal bones, spread over the entire carpus, and to include the ends of the metacarpals as well as the ends of the forearm bones. Solitary involvements of the carpal bones are not frequently observed (three of our cases). One of the striking features of tuberculosis of the wrist is its relation to tuberculosis of the tendon sheaths of the flexor tendons. In a number of the cases tuberculosis follows involvement of the flexor tendons with tuberculosis. This, of course, complicates greatly the outlook and the treatment.

Conservative Treatment: A good deal has been claimed for heliotherapy: Satta reports 50 per cent of cure. Immobilization by splints of plaster of Paris, however, is the universally accepted conservative method. It must be carried out under general orthopedic principles, under the provision that while the wrist is to be immobilized, free movement of the fingers should be provided as much as possible.

Two or three months of immobilization are sufficient for a trial. Adult cases which progress in

spite of immobilization and in which such progress can be demonstrated by the x-ray picture, must be relegated to operative surgery.

As soon as the process of repair is advanced enough, it is of great importance to provide for mobilization for the fingers. The rigidity of the wrist after long immobilization is a matter quite compatible with good finger function, provided only that the wrist position is favorable, namely at 20 degrees dorsiflexion.

Operative Treatment: Incision and drainage is merely a temporary procedure. It is inadequate for the cure of the disease, and it is only a preparatory method to be followed either by heliotherapy in suitable cases or by resection. In one case incision and drainage was practiced. This was a case of the suppurative fungus type, with rice bodies, which showed a good end result only because there followed a partial natural fusion.

Resection. The partial resection of the wrist was recommended by Sorrel as early operation. (Tavernier also uses partial resection with the reservation that conservative rteatment should first be tried in order to exclude such benign forms as will yield to conservatism.)

Total resection is the procedure which was originally advocated by Ollier and which may now be considered the standard operation for adult tuberculosis of the wrist. Before the introduction of heliotherapy it was more uniformly and universally practiced. More severe and refractory cases of tuberculous arthritis of the wrist, with extensive lesions ,suppurations, and persistent sinuses, with severe deformities and contractures are material for the total resection. Of the eleven cases of resection in our series, three were partial and eight were total, and in five of the resected cases surgical tuberculosis of the wrist followed tuberculosis of the tendon sheaths.

Amputation is the last resort and is indicated where the function of the hand seems irreparably lost and where the condition of the patient is such as to make speedy elimination of the tuberculous focus imperative. That is to say, in cases of tuberculous arthritis with extensive ulcerations and sinuses, leading to cachexia.

END RESULTS

1. *Conservative End Results:* Taking the reports of older observers, for instance, Leonhard, one gathers the impression that both the early and the late results are discouraging.

In an early report of eight cases, I could report six cases improved by conservative method: (one patient amputated, and another patient treated by resection, the latter dying later of pulmonary tuberculosis).

In our newer series, among twenty-four cases, twenty-one end results could be obtained. Eight cases were treated by conservative methods, by casts, splints, and general supportive treatment. Of these, two cases died of tuberculous sepsis within the period of observation and in two cases the end results could not be definitely established. Of the four remaining cases with an average observation of eleven months, the result was good in two, poor in one, and fair in one.

2. *Operative End Results:* We have more definite statistics to offer in regard to the operative treatment.

Of thirteen cases, eleven were resected; one was amputated, and one case was drained. Of these, in two cases the operative end result was undetermined. Of the eleven remaining cases the average post-operative observation time was 2.61 years. The end results were good in eight cases, fair in two, and poor (amputation) in one.

In 1932, Dennis and Jean published an article on long-range end results on a number of cases which had been operated by Ollier himself or in his clinic. They could trace twenty-eight cases of the thirty-nine, finding fourteen living. Of these fourteen, ten were re-examined at intervals which ranged up to fifty-three years after the resection. The results in all cases were good, there was no deformity with the exception of one case. There was good mobility of the fingers and good strength. Our own late results, of course, involve a very much shorter time of observation, but seven cases were observed two or more years after the resection, with an average observation time of 3.14 years. All cases fused well, and so far as the function is concerned, five cases showed good and two fair result.

COMMENT

The clinical interest centers about the following points:

1. Is adult tuberculosis of the wrist ever regressive? We only found one benign case in our entire series; all others seemed to be progressive.

2. How much can be expected from conservative treatment, especially heliotherapy? That, of course, is a geographic and climatic question. Satta's statistics show 54 per cent cures by heliotherapy alone. But even this does not compare favorably with the end results obtained from operative methods. Our small series shows that operative result of resections compares favorably even with the best conservative statistics. The average time required for fusion varied from twelve to twenty-six months.

Our late end results, with an observation time averaging three years, again compares favorably with the late end results reported by Dennis and Jean. A careful investigation of the material convinces us that the results of partial or total resection of the wrist in adult cases are not likely to be exceeded by those of conservative treatment, and we, therefore, subscribe to the policy of resection of the wrist after a short trial period in all adult cases.

University of Iowa.

Tumors of the Breast

GEORGE W. JONES, M. D.
Philadelphia Pa.

BEFORE considering at once the tumors of the breast it would be worth while to review briefly the embryology, anatomy, and physiology of the mammae, as such knowledge is essential in helping us to understand some of the perplexities of the pathological conditions. We remember that the mammary glands are developed from the two milk lines along the ventral surface of the embryo by downgrowths of epithelium of the ectoderm at certain bilateral points. Embryologically the mammae have been considered to be modifications of sweat glands[1], (Weiner[2] associates Paget's Disease with cancer of the apocrine type of sweat glands) or fat glands. But in view of their specialized function of production and secretion of milk it is probably best to regard them as mammary glands from the start and in their own right.

Anatomically the gland consists of 16 to 20 lobes, each having an efferent duct which opens on the nipple with a dilatation just below the opening called the ampulla. The lobes are divided into lobules and the whole supported by a fibrous tissue framework and plastically modeled with fat. In addition, the lobules and acini are surrounded by a specialized loose connective tissue which seems to be intimately related to physiological states of function, as it increases or decreases in amount depending on quietude or activity of the gland. The racemose character of the gland (grape-like clusters of acini suspended from ducts) is not obtained until menstruation, pregnancy or lactation. And following these functional states there is a return, more or less complete, to the original simple duct system. Variants from the normal and regular processes of functional hyperplasia and involution are chiefly responsible for the conditions diagnosed as chronic and chronic cystic mastitis. Great confusion exists in the nomenclature of these cases. Lewis and Geschickter's[4] treatment of chronic cystic mastitis is clarifying to me. They note that it is not inflammatory, but probably associated with disturbances of glands of internal secretion. They do not consider it is be pre-cancerous, less than 1% of 523 cases observed over five years having developed cancer. They divide chronic cystic mastitis into 2 types: (1) cystic form and (2) adenosis with an indfferent stage common to the early stage of both, which is designated "painful breasts" 'or mastodynia. The cystic form and adenosis seem to be analagous to cystiphorous epithelial hyperplasia and mazoplasia respectively, of Cheatle & Cutler.[3]

AUTHOR'S NOTE:
This is the second of a series of monthly articles on tumors, the first having been in the nature of a general consideration and having appeared in the April issue. It seems customary for professional writings to emphasize the importance of the subject under discussion by reference to its commonness or rarity, novelty or antiquity, timeliness, etc. The fact that mammals are so called because of the existence of funtioning mammae could be considered as satisfactory evidence of the importance of our subject. More practical, however, is the fact that about 18% of all cancer deaths in women result from carcinoma of the breast.

In reviewing 80 cases of non-malignant conditions of the breast at the Oncologic Hospital, I found the diagnosis to be as follows:

Chronic or chronic cystic mastitis	44
Hyperplasia	9
Mazoplasia	6
Acute or sub-acute (real) mastitis with or without abscess	5
Intraductal papilloma	3
Fibromas	3
Adenitis	3
Excoriation or ulcer of nipple	3
Gynecomastia	2
Galactocoele	1
Hypertrophy of glands of Montgomery	1

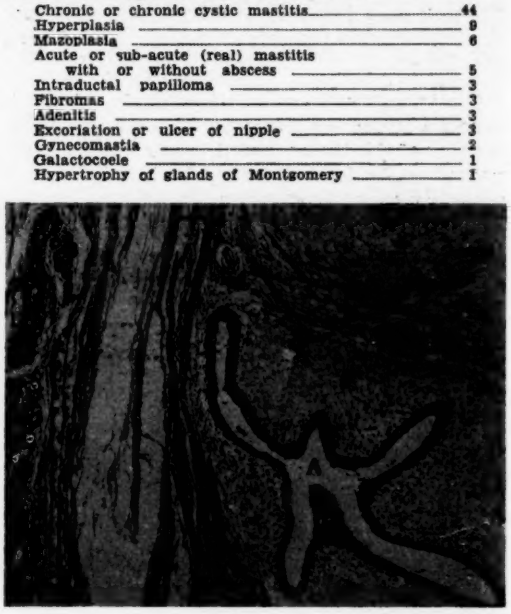

Figure 1
Right half of photomicrograph shows part of an intracanalicular fibro-adenoma A, Duct. B, Periductal loosee connective tissue. C. Capsule. D and D 1, Breast lobule with some flattening from pressure of the fibro-adena.
Photomicrograph X 92

We now turn to the one condition which is of paramount importance, namely carcinoma. Aside from a very occasional sarcoma or mixed variety of tumor, carcinoma is the newgrowth which gives us the greatest concern. The benign tumors that cause the most confusion are the adenomas and fibromas, with their admixtures fibro-adenomas, intraductal papillomas, and the endocrine states of shotty or nodular (adenosis) and cystic breasts.

PRACTICAL CONSIDERATIONS

For a practical study let us assume that a woman, aged 42, comes to us with a lump the sze of a hulled walnut in her breast. She has just recently discovered this lump, having done so quite accidently while bathing (which is frequently the way the lump is discovered) as there is at first no pain and rarely a sensation of discomfort or stinging to attract her attention to the breast. We ask her if there is any cancer in her family and then forget what she answers, as it really makes no difference in our management of her case. She is married, has had 2 children, but did not nurse either one. Carcinoma is more frequent in breasts which have not lactated normally. Ewing[5] states that stagnation of breast contents may be a contributing factor

to the development of breast carcinoma and cites Bagg's work in producing carcinoma in lactating mammary glands of mice of a susceptible strain by ligating the nipples. Our patient has missed 2 menstrual periods, thinks she is "in the change" but admits the possibility of pregnancy. This possibility is important to determine because the fate of pregnancy cancer is practically 100% fatal in a short time. Later, in our complete physical examination, we find no signs of pregnancy and an Ascheim-Zondek test proves negative. If, however, a pregnancy had been found and we conclude that the lump in the breast is cancer, should we perform an abortion? Smith[7] reviewed 53 cases of cancer in pregnancy and says that they do worse after abortion.

There has been no trauma so we need not consider a hematoma or traumatic mastitis (fat necrosis). No secretion from the nipple has been observed so we probably do not have an intraductal papilloma, as the latter condition the size of a walnu twould have produced a serous or sero-sanguineous secretion in 75% of cases.[8]

Inspection reveals a slight retraction of the nipple when compared with the opposite one. We sense

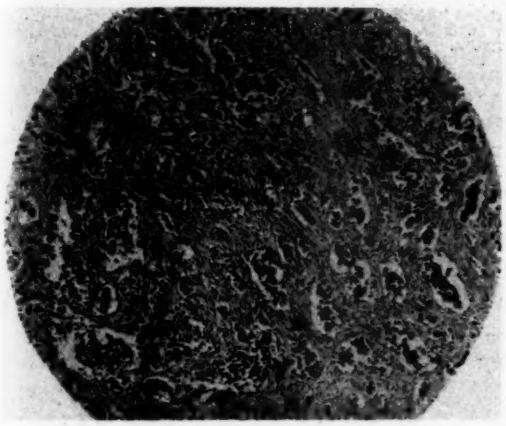

Figure 2
Carcinoma in the breast. A, Carcinoma cells. B, Stroma of breast.
Photomicrograph X 92

that we cannot "pull out" the nipple as easily as we can its fellow. No skin changes are seen on or around the nipple, thus excluding Paget's Disease. An eczematoid condition together with the lump would most likely have led us to diagnose Paget's. Hertzler[9] states that he has seen "only one case characterized by skin changes in which there was not already a cancer present readily distinguishable by the naked eye." This one case he prefers to call Velpeau's Disease. McFarland[10] views Paget's Disease as a primary epithelial malignancy with no especial relation to a deeper lying carcinoma. We must not forget that the dermatologists describe a true eczema which is usually bilateral, not so red, and presents no sensation of infiltration.[10] Scabies, we must remember, may also produce a dermatitis around the nipple. Remember, too, that about half of the nursing women suffer from erythema, erosions, ulcers or fissures with some bleeding during lactation and nursing.[5]

Palpation of the breast reveals a firm to hard lump which moves over the chest wall. Its shape seems not quite regular; fibroepithelial tumors usually not so hard, more elastic, and frequently rounded or oval, sometimes with bossellations. We find a slight skin attachment but no skin redness or discoloration. The benign tumors do not, as a rule, cause skin attachment. Tuberculosis, infectious (real) mastitis, abscess (if not situated too deep), plasma cell mastitis, the infrequent inflammatory and erysipeloid types of carcinoma, may all show skin attachment or involvement but discoloration is ordinarily present also.

Well-developed orange or pig skin is readily recognized but slight skin attachment may necessitate use of a tangential beam of light in a darkened room to pick up the furrowing—a method used with success at the Scott & White Clinic at Temple Texas. By transillumination the lump casts a darker shadow than a cyst, but not so dark as a hematoma.

Palpation of the rest of the breast, as well as the opposite one, reveals no other lumps or nodules, thus helping us to rule out adenosis or cystic disease. Also, the absence of a history of mastodynia leads us not to suspect such conditions.

In the axilla we find a fairly firm gland 1.5 x 1.5 cm. The other axilla presents a smaller and softer one. We can suspect metastasis but Portmann[11] warns that experience at the Cleveland Clnic reveals that we can expect to be wrong 50% of the time, as regards predicting axillary metastasis before operation.

X-ray films of the breasts may give some additional information but frequently they are ambiguous. A completely and regularly delineated opacity should speak for a fibro-adenoma; an opacity with hazy and ill-defined border or edges with linear extensions therefrom rather speaks for carcinoma. Hicken[12] and his colleagues, by injecting thorium and oxygen, obtain additional diagnostic information on the films.

We have, then, in favor of carcinoma:

(1) A lump in the breast of a woman who has borne children, but who has not nursed, and who is of the cancer age.

(2) This lump is attached to the skin with slight skin wrinkling.

(3) The lump is hard and its outlines irregular.

(4) Retraction and some degree of fixation of the nipple.

(5) An enlarged and firm axillary gland.

(6) Suggestive x-ray evidence.

(7) Elimination of some other possibilities by means of differential diagnosis.

For further confirmation we can perform an aspiration biopsy as is done at Memorial Hospital in

I wish to express my thanks to Doctor J. McFarand, of the University of Pennsylvania, Philadelphia, for the loan of slides from which photomicrographs shown in Figures 1, 2, were made; to Miss Rowley, of the University of Pennsylvania, and Mr. John H. Muier, of the Oncologic Hospital, for making the photomicrographs.

New York City. (Martin & Ellis[13], Stewart[14]. Their interpretation should be made by a pathologist experienced in this diagnostic method. Without definite confirmation it is considered good procedure to give a course of roentgen therapy (Pfahler)[15], followed by mastectomy. A frozen section may assist us but the experienced surgeon usually can tell grossly the nature of the condition. The axilla is investigated. In the case in hand only the one gland is found and it is removed for pathological study. If it is found not to be carcinomatous, post-operative irradiation may be given but is probably not necessary (Portmann)[11]. If the gland contains carcinoma cells it is best to give post-operative irradiation. Dorrance[16] questions the advisability of operating on patients whose axillae are definitely involved. When we consider that the axillary glands are only one station-stop in the peregrinations of cancer on the loose, we recognize the logic of such an opinion.

Adair & Quimby[17] have treated some cases with interstitial radium and external radiation. Keynes[18] has used interstitial radium needles in the breast and primary growth and accessible lymphatic areas.

In the limits of this short discussion I cannot take up such features as microscopical grading, classifications (Steinthal, Von Hauseman, Portmann, Pfahler), systemic metastases, clinical varieties, etc. Suffice it to say that carcinoma of the breast is similar to carcinoma anywhere else: i: e., if seen early while it has not yet metastasized, our problem is relatively simple and the outlook good; if metastasis has already occurred, our problem is entirely different, the treatment complicated, and the prognosis much worse.

American Oncologic Hospital:
33rd at Powelton.

BIBLIOGRAPHY

1. Prentiss & Arey: Textbook of Embryology, Phila. W. B. Saunders Co., 1917, p. 297.
2. Weiner, H. A.: Paget's Disease of the Skin and Its Relation to Carcinoma of the Apocrine Sweat Glands. Am. J. Cancer. 31, No. 3, Nov., 1937, p. 373-402.
3. Bailey, P. R.: Textbook of Histology, N Y., Wm. Wood & Co.. p. 401.
4. Lewis, D. & Geschickter, C. F.: Endocrine Therapy in Chronic Cystic Mastitis, J.A.M.A., 109, No. 23, 1937, p. 1894-1900.
5. Cheatle, Sir G. L. & Cutler, M.: Tumors of the Breast. Phila. J. B. Lippincott Co., 1931, p. 77-134; p. 298-304.
6. Ewing, J.: Causation, Diagnosis and Treatment of Cancer. Baltimore, Williams & Wilkins Co., 1931, p. 41.
7. Smith, W. S. Conclusions based on the result of cases at the Brooklyn Hospital, Brooklyn, N. Y., 1937.
8. Deaver, J. B. & McFarland, J.: The Breast. Its Anomalies, Its Disease and Their Treatment. Phila. P. Blakiston's Sons & Co., 1917, p. 303.
9. Hertzler, A. E: Surgical Pathology of the Mammary Gland. Phila. J. B. Lippincott Co.. 1933. p. 179.
10. MacKenna. R. W.: Diseases of the Skin. Baltimore. Wm. Wood & Co.. 1937. p. 517.
11. Portmann, U. V.: Classification of Mammary Carcinomas to Indicate Preferable Therapeutic Procedures. Radiology, 29, No. 4, p. 391-402.
12. Hicken, N. F., Best R. R., Moon, C. F., and Harris T. F. Pre-Operative Visualization of Breast Tumors by Contrast Roentgenograms. J.A.M.A., 108, March 13, 1937, p. 864-867.
13. Martin, H. E. and Ellis, E. B.: Aspiration Biopsy. Surg., Gynec. & Obst., 59, Oct., 1934, p. 578-589.
14. Stewart, F. W.: The Diagnosis of Tumors by Aspiration. Am. J. Path., 9, Supplement, Whole No. 54, 1933.
15. Pfahler, G. E. & Vastine, J. E.: Carcinoma of the Breast. J.A.M.A., 110 No. 8, p. 543-548.
16. McFarland, J.: University of Pennsylvania, Phila., Pa., Dorrance, G. M., Oncologic Hospital, Phila., Pa.: Personal Communications.
17. Adair F. E. & Quimby, E. H.: Am. J. Roent. & Rad. Ther., 35, March, 1936, p. 359.
18. Keynes, G.: Brit. J. Surg., 19, Jan., 1932, p. 415-480.

Laryngotracheobronchitis

PAUL H. HOLINGER, M. D.
and
ALBERT H. ANDREWS, Jr., M. D.
Chicago, Ill.

LARYNGOTRACHEOBRONCHITIS is a disease which has been recognized more and more frequently during the past few years and which presents particular problems in the diagnosis and treatment. It can be defined as a clinical entity which is characterized by an intense inflammation of the larynx, trachea, and bronchi, accompanied by a sticky, gummy exudate which produces variable respiratory obstruction.

ETIOLOGY

Age is an important factor, the most typical and fulminating cases occurring most frequently in children under two years of age. This is due to the small caliber of the airways in infants, in whom swelling of the mucosa of the larynx, together with secretion, is obstructive, while in the adult it would be insignificant. Adult bronchi of the same size as the maor bronchi in children supply relatively small parts of the lung. Because of this, a mucus plug which might produce a fatal atelectasis of an entire lung in an infant, produces only an insignificant obstruction of a branch bronchus in an adult. Atelectasis of one part of one lobe has been noted in adults, however, with essentially the same clinical and bronchoscopic findings as in children.

The organism most frequently found is the streptococcus hemolyticus, which occurs in about half of the cases. Staphylococci, influenza bacilli, and pneumococci have been found. In the majority of the cases there is a mixed bacterial flora. In those cases in which the streptococcus could not be demonstrated, the possibility that the streptococcus was the primary invader and had been overgrown by the secondary invaders, could not be excluded.

An acute upper respiratory infection preceded the laryngotracheobronchitis in about one-half of the cases. The colds did not differ from the usual colds that the patients had had at any previous time. In the other half of the cases the onset was sudden.

PATHOLOGY

A knowledge of the pathology of laryngotracheobronchitis is essential in order to understand the course of the disease and to make the diagnosis and

From the Bronchoscopic Clinics Children's Memorial Hospital, St. Luke's Hospital, and Research and Educational Hospital of the University of Illinois, Chicago, Illinois.

determine the treatment in the face of varying clinical findings.

The inflammatory process extends downward from the larynx and is one of increasing destructiveness. The larynx is acutely inflamed, particularly in the subglottic area where the submucous tissue is loose. Swelling of this loose tissue produces the respiratory obstruction so characteristic of the disease. A similar process is present in the trachea and bronchi, except that the swelling is less pronounced because of the tighter submucosa. One of the most important features is that the mucus glands of the tracheobronchial tree are not involved early but are stimulated to increased activity. The secretion is at first serous and later mucous and purulent. As the disease progresses, the inflammatory changes become more destructive causing a necrosis of the epithelium. The typical gummy, ropelike exudate is a mixture of mucous, fibrin, polymorphonuclear leukocytes and degenerated epithelial cells which may take the form of dried crusts. The respiratory obstruction is the result of the inflammatory swelling and the exudate.

As the disease progresses, the necrosis of the mucosa continues, and the glands are involved. The surface becomes covered by a dry glazed exudate which extends into the finer bronchi, causing obstruction further peripherally in the lung. Pulmonary edema, interstitial and lobular penumonia, and septicemia are frequent complications in fatal cases.

PATHOLOGIC PHYSIOLOGY

The inflammatory swelling of the mucosa and the thick sticky exudate combine to produce respiratory obstructon, which may be partial or complete. During the stage of partial obstruction, an obstructive emphysema of the lung may occur because of the reflexly increased inspiratory force and the greater degree of obstruction on expiration resulting from the expiratory contraction of the bronchi. This obstructive emphysema may be sufficiently forceful to cause a subpleural bleb and a rupture resulting in a pneumothorax or mediastinal emphysema.

When the bronchial obstruction is complete and the air in the peripheral portion of the lung is absorbed atelectasis occurs. It naturally takes time for the atelectasis to develop after the obstruction becomes complete, but the process may be surprisingly rapid. Extreme and rapid variability of respiratory obstruction is one of the characteristics of laryngotracheobronchitis. This is particularly true following tracheotomy ,when obstruction of major bronchi can be so dramatically relieved by careful, thorough aspiration through the tracheotomy tube.

Respiratory obstruction causes an insufficient pulmonary aeraton. This results, first, in an increased carbon dioxide content of the blood, which acts as a stimulant to the respiratory center and causes the dyspneic type of breathng. The circulatory system responds by increasing the pulse rate and cardiac output. This condition is known as respiratory embarrassment and may be held within physiological limits.

As the obstruction becomes greater however, or the dyspneic respirations, because of exhaustion, become weaker, insufficient oxygenation of the blood occurs. This stage of anoxemia is called respiratory decompensation and is definitely harmful to the body because tissue respiration is deficient. The progress during this stage is rapid and points toward a fatal termination. Relief of the obstruction in this stage may or may not stop this progress.

SYMPTOMATOLOGY

The onset of laryngotracheobronchitis is either sudden or follows an uneventful cold which may even have started to improve. Patients seek medical attention because of the respiratory obstruction. The voice at this time is usually affected, but is not as hoarse or aphonic as in diphtheritic laryngitis. The respiration is definitely labored. Physical findings depend upon the degree and location of obstruction, which is variable. Occasionally complete remission of the dyspnea may occur and the patient fall asleep, only to awaken as the obstruction progresses. Restlessness is also dependent on the amount of obstruction. During the earlier stages the temperature is usually elevated, 101° to 103°, although it may be normal or subnormal.

With the increase in the degree or duration of the obstruction, the patents are extremely restless and irritable, and appear apprehensive. They become exhausted when the respiratory activity is insufficient. After this point of beginning respiratory decompensation is reached, the course usually runs to a fatal termination unless relief is given. The picture during the stage of respiratory embarrassment is one of extreme respiratory obstruction, as is evident by the inspiratory retraction of the supraclavicular spaces, suprasternal notch, epigastrium, intercostal spaces, and even the chest itself in very young children. Cyanosis may be present in the finger tips and perhaps in the lips, but has not as yet appeared in the skin elsewhere. Inspiratory stridor is usually audible at the mouth, and inspiratory and expiratory wheezes are heard on auscultation. One side or part of the chest may be silent, due to obstruction. Obstructive emphysema or atelectasis with the shift of the heart to the opposite or same sides, respectively, may be noted. Many moist rales and rhonci can be heard throughout the chest. The cough may be productive. The temperature rises to 102° to 104° in this stage.

The recognition of obstructive emphysema and atelectasis is highly important. Obstructive emphysema is the result of a partial bronchial obstruction and is characterized by increased resononce, shift of the heart and mediastinum toward the unaffected side, decreased breath sounds, reduced voice sounds, and increased radiability on x-ray. Atelectasis is the result of complete bronchial obstruction with absorption of the air beyond this point, and is characterized by decreased resonance, shift of the heart and mediastinum toward the atelectatic side, decreased to absent breath sounds, increased voice sounds, and decreased radiability on x-ray.

The milder cases of laryngotracheobronchitis, even in children under two years of age, may not pass beyond this stage of respiratory embarrassment. The acutely fulminating type may pass through this stage very rapidly.

After the point of beginning decompensation is passed, evidence of respiratory and circulatory failure is apparent. The cyanosis of the skin is darker until replaced by the ashen gray color of the terminal stage. The pulse becomes more rapid and weaker, and the temperature usually rises. The physical findings remain about the same, and, although the degree of obstruction may seem less on auscultation, the dyspnea continues until the patient is unable to make the respiratory effort. Exhaustion is more and more evident, until the patient is unable to fight for air, and the end is at hand.

The recognition of the point at which decompensation starts is of paramount importance. It may be reached because of marked obstruction, or because of the long duration of a lesser degree of obstruction.

BRONCHOSCOPIC FINDINGS

The pharynx shows little change except for a moderate degree of inflammation and the presence of a considerable amount of muco-purulent secretion. Occasionally, however, there is a marked supraglottic obstruction caused by a thickening of the epiglottis, aryepiglottic folds, and false cords, but generally these structures, showing only mild changes, give no clue to the intense inflammatory process below the cords. The cords themselves are red and thickened, and have lost their rather sharp phonating edges. Dry, dirty, yellow plaques adhere to the cords, further obstructing the glottis.

Immediately below the cords is seen the principal obstruction to the airway. The soft subglottic tissues bulge from the phonating edges of the cords to meet in the midline, and the mucosa is deep red and velvety in appearance. Only a small chink posteriorly allows air to pass. If the anterior portions are not obstructed by the bulging subglottic tissue, obstruction is completed by dry yellow crusts or tenacious muco-purulent secretion.

There is an almost complete lack of motion of the larynx on respiration and phonation, due to the subglottic edema which has forced the cords into abduction, preventing adduction.

A small bronchoscope can be insinuated through the posterior chink after the obstructing exudate lying on the larynx has been aspirated, and it is immediately filled with secretion which has accumulated in the trachea. When this is aspirated with a strong suction pump, the tracheal mucosa is found to be smooth, red, and velvety. All the spurs or divisions between bronchi are rounded, and the lumen of the bronchi markedly diminished in size.

The bronchoscopic picture changes at a stage which is almost terminal, when the temperature rises steadily, the dyspnea increases, and the child gradually becomes more cyanotic or ashen gray. Physical findings indicate that air is entering both lungs, but the breath sounds have become distant or leathery. Both phases of respiration are markedly shortened. Aspiration is futile, and the relief formerly obtained does not occur, the child becoming even worse because of the effort of coughing. On examination of the trachea and bronchi in an attempt to relieve the obstruction, one sees a dry, glazed, gray surface which has entirely replaced the red mucous membrane. The lumina are clear of secretions, but the thickness of the grayish exudate itself causes obstruction of even the larger bronchi. The description of the microscopic pathology adequately explains this bronchoscopic picture.

TREATMENT

Laryngotracheobronchitis is divided into two stages on the basis of the effect of the respiratory obstruction on the body. The first stage is one of respiratory embarrassment, and the second one of respiratory decompensaton. This division is made because the treatment of the two stages is entirely different—that of the first being conservative, watchful waitng, and that of the second stage being surgical intervention for the relief of the respiratory obstruction.

The recognition of the change from the first stage to the second stage is difficult and requires all of the diagnostic acumen of the physician. If the patients are allowed to progress until the stage of respiratory decompensation begins, the mortality rate will be distinctly greater than if the appropriate treatment is given before the beginning of this stage.

There are two separate phases of treatment. The first is the management of the respiratory obstruction, and the second is general management of the patient in regard to feeding, fluids, etc. It is because these problems are so complicated and change so rapidly that close teamwork is necessary between the pediatrician, resident, internes, and bronchoscopist, in order to reduce the high mortality.

The management of the respiratory obstruction during the stage of respiratory embarrassment is conservative and consists of efforts to reduce the inflammation and aid the patient in coughing out the secretions. This is accomplished by placing the patient in a room with a temperature between 72 and 76° F. and with an extremely high humidity, preferably over 80 per cent saturation. This can be accomplished by means of humidifiers and steam kettles.* Steam kettles alone raise the temperature excessively and do not adequately saturate the air.

Atropine and belladonna are definitely contraindicated because of their desiccating action on the bronchial secretion. Sulfanilamide is still of questionable value although favorable results have been reported when the drug was given early in cases in which the hemolytic streptococcus was known to be the exciting agent. While recent work indicates that the cyanosis occurring in some patients on sulfanilamide therapy is not related to the oxygen-carrying capacity of the blood, it may mask asphy-

*The Walton Humidifier made by the American Gas Accumulator Co. has been been the most satisfactory in our hands.

ial cyanosis resulting from the respiratory obstruction.

Drugs which might liquify the secretion seem to be entirely without effect and are best omitted. Drugs which reduce the cough reflex are obviously contraindicated Opiates and sedatives reduce the patient's ability to fight the obstruction and mask the symptoms. The administration of oxygen or an oxygen-carbon dioxide mixture is sometimes of great value in preventing the development of respiratory decompensation. It may be administered by tent, by nasal catheter, or by a face mask. The patients are frequently so restless that the tent or catheter cannot be used. The cyanosis may disappear during the administration, but when the cyanosis does not improve under adequate administration, respiratory decompensation is present.

The condition which must be met by surgical intervention in laryngotracheobronchitis is the obstruction due, first, to inflammatory laryngeal swelling, principally subglottic, though it may be supraglottic or may extend into the trachea; second, laryngeal obstruction due to the swelling plus thick, gummy secretion; third, tracheobronchial obstruction due to the thick gummy secretion and inflammatory swelling.

There is considerable discussion as to which of various methods should be used. Intubation can relieve the subglottic laryngeal obstruction, but will not relieve the supraglottic or the lower subglottic and tracheal obstructions. The tube itself may become plugged by secretion, and it obviously cannot relieve the obstruction of the trachea and bronchi. In addition, the presence of an intubation tube in an already inflamed, edematous, non-diphtheritic larynx for a period of several days or more, causes ulceration and may produce permanent laryngeal damage. Tracheotomy, on the other hand, supplies an adequate airway below the larynx and, of almost equal importance, provides easy access to the trachea and bronchi for aspiration of secretion by catheter. A low tracheotomy should be done to avoid damage to the larynx, so that when the proper time arrives, the canula can be removed easily. Low tracheotomy has been found to be the method of choice in the authors' experience.

Intubation or the passage of the Mosher Life Saver may have to be used as a temporary life-saving measure until the patient can be taken to the hospital or operating room. The Mosher tube was used to provide an emergency airway in two of our patients, both of whom recovered.

When intervention, to relieve the obstruction is indicated by impending respiratory decompensation, bronchoscopy can be done. By bronchoscopy the exact nature of the obstruction can be seen, smears and cultures can be made, and the secretion can be removed by aspiration or forceps as required. A non-emergency, tranquil tracheotomy is then possible with the bronchoscope in place, if the laryngoscopic examination has made it apparent that relief cannot be obtained merely through the removal of secretions.

Another indication for bronchoscopic intervention is persistent atelectasis of one lung or portion of a lung. This is necessary to prevent pneumonic complications in the atelectatic areas.

The post-operative care of tracheotomized patients is highly important. Nurses trained in the care of tracheotomized patients must be present at all times, so that the patent is never left alone. Constant attention by the interne or resident is demanded by the frequent obstruction, which may be located by physical examination and relieved by aspiration with a catheter through the tracheotomy tube. The catheter can be directed into one side or the other by tipping the tube. A few drops of normal salt solution or weak sodium bicarbonate solution dropped into the tube with a rubber-tipped eye dropper can be used to loosen thick secretion. It may be necessary to remove secretions by bronchoscopy through the tracheotomy wound when they cannot be removed by catheter. It is extremely important to keep the air moist and warm, because the normal air conditioning by the nose and throat is absent.

The tracheotomy is followed by dramatic relief and a period in which the respiratory symptoms are absent. The child usually sleeps, perhaps for hours, until the obstruction recurs, as evidenced by restlessness and signs characteristic of emphysema or atelectasis. After a few days the secretions become thinner, aspirations become necessary at less frequent intervals, and the fever subsides. Decannulation is relatively simple by reducing the size of the cannula, plugging the cannula, and, if breathing is satisfactory, removing the cannula entirely and placing an adhesive tape bridge across the wound. The process of decannulation may require two to three days, in order to safely test the child's airway.

In the fatal cases, the obstruction becomes increasingly more marked and seems to be more peripheral. The temperature and pulse increase, and a true bronchopneumonia develops. A septicemia occurs in a large percentage of fatal cases.

The general management of cases of laryngotracheobronchits, pre- and post-operatively, consists of administration of adequate fluids, subcutaneously or intravenously if necessary. Food should not be neglected. It is essential that these children be disturbed as little as possible because they need all their strength for the fight against the obstruction and infection. They should not be dsturbed any more than is absolutely necessary for laboratory or physical examination. The usual nursing care should be reduced to a minimum.

The literature of laryngotracheobronchitis, together with mortality statistics comparing various methods of therapy, can be found in the article by Brennemann, Clifton, Frank, and Holinger[1]. Spearman and Vandevere[2] have presented four case reports and reviewed this disease. Their method of treatment is practically the same as described here. Howard[3] has advised the use of intubation in the acute stage of the disease followed in 8 to 14 days by tracheotomy. However, he has not differentiat- between acute obstructive non-diphtheritic laryn-

gitis and laryngotracheobronchitis. Inasmuch as the tracheotomy tube can be removed within 14 days in most cases, Howard's method seems to prolong the morbidity unnecessarily.

SUMMARY AND CONCLUSIONS

1. Laryngotracheobronchitis is described as a clinical entity to be differentiated from simple laryngitis by its severity, distinctive thick gummy secretion, respiratory obstruction, and high mortality rate.

2. The etiology, symptomatology, and therapy are discussed.

3. The respiratory obstruction for the purpose of therapy is divided into the stages of respiratory embarrassment and respiratory decompensation, the second stage being characterized by anoxemia and being terminal. Relief of the obstruction should be given before the second stage begins.

4. The principles of the treatment are discussed, and bronchsocopy and tracheotomy are considered the methods of choice in relieving the obstruction.

1150 No. State Street.

BIBLIOGRAPHY

1. Brennemann, J., Clifton, W. M., Frank, A., and Holinger, P. H.: Acute Laryngotracheobronchitis. To be published in the Am. Jour. Dis. Childhood.

2. Spearman, M. P., and Vandevere, W. B: Acute Laryngotracheobronchitis; Case Report. Southwestern Medicine, 21: 165-168, May, 1937.

3. Howard, W. A: The use of intubation and tracheotomy in the treatment of obstructive laryngitis in children. Jour. Ped. 12: 45-57, Jan., 1938.

First Aid Mindedness in the Treatment of Fractures

C. E. YOUNT, M. D.
Prescott, Arizona

THERE will occur over a million fractures on the nation's highways during the next twelve months, due to automobile accidents. Dr. A. D. Lazenby[1] estimates that a million and a half will be injured in industry in the same period of time; not all fractures, of course. Faced with such calamitous certainties there is today a real need for First Aid Mindedness on the part of physicians and the public.

Industry is bringing to her accident problem improved safety devices, organized and trained first aid, and the highly trained industrial surgeon. The injury frequency rate has declined 61 per cent in the past ten years and the injury severity rate has been reduced 43 per cent according to the report of the National Safety Council.[2]

On the other hand, contrast the many automobile accidents that will occur at the country cross-roads far from trained medical assistance and standardized hospitals. The physician in the smallest town and the cross-roads filling station attendant may be suddenly called up to render the most exacting first aid. Their knowledge and skill, or lack of them, may be determining factors in the outcome of many of these cases.

It was Shakespeare who popularized the idea of "Sermons in stones and good in everything." The greatest, I was about to say the only, good to come from the World War seems to be the improvement in fracture treatment. "The lessons learned" at such great cost have not been forgotten and today in our larger hospitals, debridement, direct skeletal traction, Thomas splint, overhead suspension, fixation in position of optimum function and roentgenographic control are rather common routine."

To these I would like to add the improvement in the emergency treatment of fractures. I hope that there is a gradual awakening of the public conscience to what constitutes adequate and proper first aid in fractures. Moorehead states[4] that "Primarily in the interest of the patient, and also of the doctor and the public, it is necessary that the profession become acutely surgically minded in the care of the injured."

I believe that it is clearly our duty as medical men to be prepared ourselves and to educate the public, or that part of it likely to be concerned, to be acutely first aid minded in the care of the injured.

It took the British Medical officers something over a year to learn that in fractures of the femur they could reduce their high 80 per cent mortality to 20 per cent by prompt and adequate splinting. "Splint 'em where they lie" became the slogan which they passed on to us in 1917.

FRACTURE INFORMATION SOURCES

I deal with only four of the many sources and methods of evaluating, disseminating and applying information concerning the emergency treatment of fractures.

1.—(a) In 1922 the American College of Surgeons formed a committee on fractures,[5] and this committee has been continuously active in promoting the better care of fractures. The committee now consists of forty-three outstanding fracture men in the United States and Canada. Their "Outline of the Treatment of Fractures" is intended to be a safe and ready reference manual for students, hospitals, internes, industrial surgeons and all those who are called upon for the occasional treatment of fractures. Dr. Charles L. Scudder is chairman of the Regional Sub-Committee. His suggestions to the Regional Committee include the following:

"Medical Profession. The committee should use its influence to see that papers and demonstrations on fractures are presented before state, county and local medical societies, hospital staffs, groups of industrial surgeons, police surgeons, and fire surgeons. The regional fracture committee may well hold

Read before the second Harlow Brooks Memorial Navajo Clinical Conference, held at Sage Memorial Hospital, Ganado, Arizona, Sept. 3-4, 1937.

joint meetings with the above societies and groups. At all of these meetings the importance of fixed traction in transportation should be stressed.

Lay Public. The committee should cooperate with the American Red Cross chapters in training groups in fixed traction methods, and in establishing emergency highway first aid stations. Proper equipment of ambulances and training of their personnel should be stimulated. These ambulances are under control of municipal, police, and fire departments, funeral directors, and industrial and private organizations. The committee should cooperate in training Boy Scouts.

1.—(b) The success of the "Primer on Fractures", edited by the Cooperative Committee on Fractures of the American Medical Association, now in its third edition (1933) and the ever increasing popularity of the demonstrations of fracture treatment at the annual meetings of the Association, may be interpreted as a healthy growth in First Aid Mindedness in Fracture treatment.

"For four consecutive sessions (1927 was the first year) the demonstrations of the treatment of fractures have been the center of an eager audience; usually seven booths were required. A large corps of physicians aided the general and advisory committees by giving demonstrations. The United States Army Medical Department generously cooperated by detailing soldiers on whom the demonstrations were made."

Two outstanding Arizona Surgeons, Drs. E. Payne Palmer and Joseph M. Greer, on the program here today, have served as demonstrators at the American Medical Association meetings and witnessed the interest and enthusiasm created by these demonstrations of fracture treatment.

2. The American National Red Cross, through its first aid and life saving service, is performing a timely and greatly needed public service in teaching first aid to thousands of lay students annually. "Never has the need for first aid been greater than at present, when accident fatalities of the United States have reached such a proportion that, if those of a year were to happen in a single day it would plunge the entire nation into mourning as the greatest catastrophe in recorded history."

In this catastrophe we see the American Red Cross as one alleviating factor. The medical profession should back the annual Red Cross drive for funds. We should urge them to place more trained first aid teachers in the field. Ten laymen should be trained where only one receives first aid instruction today because of a lack of funds.

Instruction in the American Red Cross First Aid course should be a part of the curriculum in all our upper grade schools. Even the college graduate will find his education incomplete without some knowledge of first aid. The chapter on fractures in the first aid text book has been completely revised by Drs. Scudder and Kennedy of the Fracture Committee of the American College of Surgeons. Two short paragraphs will convince you of the sanity of the text: "The position of the patient on the stretcher should be such that his particular injury will receive no further hurt." (p. 213) "The common practice of jack-knifing a seriously injured person into the back seat of a passing car without regard to injuries and driving at a break neck speed to the hospital can not be too strongly condemned." (p. 224)

3. The fracture work of the Association of American Railroads. (Roscoe C. Webb[1]) "During the past few years the American College of Surgeons and various other surgical organizations throughout the world have come to recognize that the care of fractures is a problem which needs more study and attention. First aid and transportation splints as approved by the Fracture Committee of the College of Surgeons have been recommended to all railroads. Some railroads have placed these splints with all local surgeons."

The Chicago ordinance concerning fracture equipment for ambulances has been recommended by the Committee, and this ordinance has been adopted by some other cities through the efforts of local railroad surgeons: "Be it ordained by the City Council of the City of Chicago, an ordinance 2343-a-Attendant-splints required. No person, firm or corporation shall operate or cause to be operated any ambulance, public or private, or any other vehicle commonly used for the transportation or conveyance of the sick or injured, without having such vehicle equipped with a set of simple first aid and splint appliances approved by the board of health and having in attendance at all times such vehicle is in use, a person who has obtained a certificate of fitness as an ambulance attendant from the board of health. Any person desiring a certificate as an ambulance attendant shall make application in writing therefor to the board of health. Before the issuance of any such certificate the applicant therefor must present evidence of his qualifications to fill such position and must demonstrate to the satisfaction of the board of health his ability to render emergency first aid and to apply approved splints to arm and leg fractures."

The Great Northern Railway Company's Surgeon's fracture report, paragraph 5, "First Aid and Transportation," is most modern and erudite.

"Was he splinted where he was lying? If the arm or forearm bones were fractured, was a hinged ring (Thomas-Murray) traction splint applied If thigh or leg bones were fractured, was a hinged half ring traction splint (Keller-Blake) applied? If the fracture was in a thoracic or lumbar vertebra, was he carried face downward when moved? If other first aid splints were used, please describe."

This company's "General Directions for Guidanxe of X-ray Work in Fractures" is most helpful as to views desired and liberal as to the number of views required.

4. (a) *Medical men as instructors or advisors in first aid.* Quoting Byron Stookey's "Treatment of Fracture Dislocations and Spinal Cord Injury"[2]:

"Immediate first aid, immediate recognition of spinal cord trauma, at the site of the accident is

imperative, since careless transportation may convert a relatively slight injury into an irremediable lesion. I have known of paralysed patients being picked up and transported to the hospital by automobile in an upright position, certainly jeopardizing whatever may have remained of spinal cord continuity. Since physicians are not always on hand to make an immediate diagnosis, the lay pulic must be instructed that any injured patient unable to move arms and legs, or legs alone, should not be moved until competent aid arrives. All too often a well meaning Good Samaritan will try to lift the patient and carry him to a more comfortable place, entirely ignorant of the fact that further flexion of the head on the trunk may result in severe and permanent damage to the spinal cord. Under these circumstances a few minutes in presumably greater comfort may mean a lifetime of paralysis. Another unfortunate procedure all too often seen in well meant attempts at first aid consists in lifting the patient's head to enable him to drink, thus bringing the chin onto the chest, which, in the presence of a fracture dislocation of the cervical vertebrae may further destroy whatever cord function remains. The immediate handling of fracture dislocation with spinal cord injury is so important that those who are likely to render first aid must be made aware of the danger inherent in such accidents.

A campaign of public education is imperative, that the layman may be informed on this subject just as he has been on *resuscitation of a drowning man*. It can not be too strongly emphasized that these patents should be left alone or moved under skilled direction."

4. (b) James E. M. Thomson's "Fractures of the Dorsal and Lumbar Vertebrae"[9] is next quoted:

"The same basic principles respecting treatment of fractures of the long bones apply to treatment of fractures of the spine. Therefore, we believe that the treatment should begin at the place where the injury occurred. The intelligent recognition and first aid handling of patients with fractured spines, or those who are suspected of having such an injury, bear a direct relation in many instances to the ultimate result, the amount of disability, and the ability of the patient again to resume his former occupation. The bravado of the ignorant, thoughtless first aider, who drags an automobile crash victim by the shoulders, from a wreck, with his hands in the latter's armpits, and lifts him to the sitting position, or asks the man who has fallen from a telegraph pole if he can stand up, and helps him to do so, is to be condemned. Far too often inestimable damage is done by hastily shoveling a patient into the back seat of an automobile and crouching him over on his trip to the hospital, or by dragging a man by his arms and feet to the litter of an ambulance in the hurry and confusion of doing a 'good turn'.

"Pain in the back after a trivial injury, twist, sprain, or lift must not be dismissed lightly, because severe vertebral damage has resulted from such torsion forces. Therefore, if the character of the injury is such that the back might have been fractured, whether the patient presents severe symptoms or not, the case is worthy of intelligent handling from the place of accident to the hospital. Of course, if paralysis of the extremities exists, the diagnosis is not difficult.

"The foremost cause of fracture of the spine is the jack-knifing forward thrust, or flexion of the trunk on itself, no matter how the force is delivered. Therefore, in rendering the initial treatment and first aid, two things are essential; First, not to increase the deformity by further jack-knifing the back and causing possible cord injury; and second to immobilize the spine appropriately until proper treatment can be instituted. To accomplish this one should roll the patient, if he is lying on his back or side, onto a board or litter into the prone position. With his hands above the head a certain amount of support and comfort is given. If he is lifted or turned, the lower extremities, trunk, and head should be supported in the same horizontal plane. Once established on the transportation litter, whatever it be, door, plank, cot, or stretcher, in the prone position, it would be far better that he remain there until the diagnosis is made than to have him moved to the slab of a receiving ward for removal of the clothnig, then to an emergency bed, later to the x-ray table, and mauled to and fro, before an adequate diagnosis is made and treatment of the fracture instituted."

Now let us briefly consider what actually happens when, say, a long bone is broken in an automobile accident.[10] "The actual conditions at the site of the fracture are of great importance in establishing the general principles of treatment. They may vary from a simple crack in the bone with no displacement and only the slight disturbance of the surrounding tissue to a lesion of the greatest severity with marked displacement of the fragments and with much damage to all of the neighboring tissues. It may be necessary to make an immediate decision between amputation and conservative treatment and in such a case the attendant must consider the gross damage and the question of blood supply to the injured part. Such problems if they occur where no consultant is available must be left to the judgment of the individual practitioner, to be handled as his skill and his equipment may dictate.

Ordinarily when a bone is broken, the endosteum and the periosteum are torn and the surrounding soft parts are more or less damaged. Blood vessels and lymphatics are ruptured, and the tissue becomes infiltrated and engorged with blood, lymph and inflammatory exudate. This causes swelling, pain ,and circulatory disturbances, which are increased by handling of the extremity and by movement of the fragments of bone. The blood, lymph and exudate are rich in fibrinogen, and rapidly form a fibrinous clot which begins to become organized in forty-eight hours. Some of the bone cells on the ends of the fragments and some of the soft tissues are usually killed by the traumatism and

produce ferments which autolyze these dead cells. A calcium compound derived from the autolyzed bone or according to some observers from the blood stream, permeates the tissue fluids in the region of the fracture. This process is slow, and occupies several days.

The swelling and infiltration reach their maximum in eight to twelve hours, and then circulatory disturbance from pressure and thrombosis adds an actual edema to the picture. The clotting of blood and exudate leave a residue of their fluid contents which gradually diffuses toward the surface. This residue is important because the more fluid whether exudate or transudate, present at the site of fracture, the less efficient is the organization of the fibrin.

In addition to this common picture there may be associated injuries of contiguous muscles, vessels, joints, tendons, tendon sheaths, and viscera, which must be considered as part of the lesion. Blebs and bullae may appear on the skin and add materially to the diffculty of treatment. All of these factors must be considered in determining the form of treatment.

Visualize this pathology of soft parts and bones as occurring to a greater or less degree in every fracture. Add to this, in many cases, shock from loss of blood, pain and other traumas, and " 'Tis a consummation devoutly to be wished", that prompt, adequate and intelligent first aid be available in every case of fracture.

REFERENCES

1. Insurance Co. Relationships and Responsibilities in Compensation Insurance: A. D. Lazenby, M.D., S.G.O. Feb. 15, '37.
2. Report on 1936 Surveys of Medical Service in Industry: M. N. Newquist, M.D., S.G.O. Feb. 15, '37.
3. Fractures and Dislocations: Wilson and Cochrane.
4. The General Management of Injuries: John J. Moorehead, M.D., F.A.C.S., S.G.O. Feb., 15, 1937.
5. Bulletin American College of Surgeons Jan., '37.
6. American Red Cross Textbook.
7. The Fracture Work of the Association of American Railroads: Roscoe C. Webb, M.D., F.A.C.S., S.G.O., Feb. 15, '37.
8. The Management of Fracture Dislocations of the Vetrtebrae Associated with Spinal Cord Injuries: Byron Stookey, M.D., F.A.C.S., S.G.O. Feb. 15, 37.
9. Fractures of the Dorsal and Lumbar Vetrebrae: James E. M. Thompson, A.B., M.D. F.A.C.S., S.G.O. Feb. '37.
10. Pathology of the Fracture Lesion: An Outline of the Treatment of Fractures by the Committee on the Treatment of Fractures, American College of Surgeons, 1933.

Upper Respiratory Infection From Spirochaeta Bronchialis in Children

ROBERT D. HAIRE, M. D.
Hobbs, N. M.

TWO things are of paramount importance in the treatment of colds: first, determining the causative agent and second, the method of treatment. It is obvious specific treatment cannot be given without the causative organism or organisms being found. For this reason all cases of upper respiratory infection should at the start of and if necessary during the course of treatment have throat smears or sputum examinations done.

Attention is invited to the fact that a spirochete form of bronchitis does occur often in children. Diagnosis is made from symptoms and by smear of the throat which will be discussed later in this article. To quote Todd "since the first recognition of bronchial spirochetosis and description of Spirochaeta bronchialis in 1906 by Castellani cases have been reported in nearly all tropical and sub-tropical countries, in Southern Europe, and more recently in the United States".[1] Evidently the cases seen in the southwest are of a mild form since most of the ones in the past three years have not run very high fever, and the main symptoms are running nose, hard or spasmodic cough made worse if the child cries, chokes on a bottle, or sleeps in a cold room. Malaise may be slight but the cough remains for days or weeks, and many times the winter. Mothers take for granted that their child has a slight cold and worry none until the little one gets wet and chilled with an acute flareup. It is often mistaken for whooping cough and treated as such. Examination of the nose may show a dry crusting, or a mucus discharge. The throat is slightly injected especially around the fauces. Chest examination may be negative depending on whether there is much involvement of the smaller bronchial tubes.

Read before Lea County Medical Society.

DIAGNOSIS

Diagnosis is made by stained smears, best obtained by scraping the fauces with a connon applicator, making a smear on a glass slide, allowing to dry in air, fixing with heat by passing a few times through a flame, then covering the slide with carbol fuchsin and steaming over the burner for 20 seconds. It is then washed in water, dried in air and examined. A good description is that given by Simon[2] "Examination shows a spiral organism measuring 6 to 28 microns in length by 0.3 in breadth. The ends are acuminate and the undulations vary in number from three to fourteen. Length of the undulations are from 1 to 1.8 microns."

Finding of an occasional spirochete is sufficient to make a diagnosis, for contrary to the opinion

Stain: Carbol fuchsin and heat for 20 seconds. One spirochete shown. The usual textbook picture of spirochetes which resembles in number a badly damaged shredded wheat biscuit is misleading and only seen when a smear is obtained from an ulcer.

of most authors the spirochetes no more normally found in a throat smear or sputum examination than is the tubercle bacillus. Cases after treatment are free of spirochetes and remain so as long as the symptoms remain free.

TREATMENT

Treatment of this condition is the treatment of the usual cold plus a mild nose drop, mercurocrome 2% aqueous solution as a throat swab three times a day, and the use of specific medication—namely bismuth intramuscular (gluteus muscle). For an infant of one year one c.c. repeated in two days. A child of three, one to one and a half c.c. repeated in two days, and in larger children and those approaching adolesence, the adult dose of two c.c. When spirochete bronchitis occurs as a complication of other childhood diseases, the treatment remains the same.

114 West Taylor St.

REFERENCES

1. Todd, James Campbell and Sanford, Arthur Hawley: Clinical Diagnosis by Laboratory Methods, W. B. Saunders Co. Seventh Edition, 1934, Page 75.

2. Simon, Charles E.: A Manual of Clinical Diagnosis by Means of Laboratory Methods, Lea and Febiger, 1922, Page 531.

Sinus Thrombosis and Mastoiditis Without Otorrhoea

JOHN H. CHILDREY, M. D.
San Francisco, Calif.

A case of atypical mastoiditis is reported because of the diagnostic problem it presented, and because it resembles those of mastoiditis without apparent otitis media.

CASE REPORT

M. J., a white man, aged 28 years, came for an examination of the eyes November 13, 1937, because of a severe pulling and throbbing sensation in, above and behind both eyes, which came on daily and had bothered him a little over two weeks. The pain was worse when leaned forward, wakened him at night, was increasing in severity and was only partially relieved by salicylates. Three days before the onset of the pain he had had an acute upper despiratory infection with soreness of the throat and stuffiness of the right ear. He had been examined recently by two other physicians who diagnosed sinus infection and prescribed drops for the nose, and by his dentist who extracted an abscessed molar tooth.

The patient had been an invalid for 17 years because of staphylococcic osteomyelitis of the right tibia which began at the age of 11 years, following a furuncle on the neck. Later the right knee joint and femur became affected, necessitating in 1936, amputation of the leg above the knee. He had had occipital headaches for years which he believed were a result of lying in bed so much.

The patient was well developed and well nourished, and his temperature normal. The vision in each eye was 100 per cent. There was slight hyperopia and astigmatism. The media were clear but the optic disks were raised about 1½ diopters and their margins were blurred. There was moderate moderate venous stasis in the fundi. Studies with the perimeter and tangent screen showed very slight contraction of the fields and with the 2 mm. test object, considerable enlargement of the blind spots. The ear drums were retracted and the posterior margin of the right was slightly reddened. Tests of the hearing showed slight conduction deafness on the right. There was no tenderness over the mastoid or sagging of the wall of the auditory canal. The tonsils had been removed. Mucopus was noted in both sides of the nose, and there was pus on the right antrum, those of the skull were negative. Tests of the blood were negative for syphilis and except for a few pus cells the urine analysis was negative.

Because of the headache, papilledema and enlarged blind spots, a neurologic consultation was requested of Dr. H. W. Fleming, who found the patient to have a slight weakness of the left face and a definite increase in the left biceps reflex, but no Hoffman or Babinski on the left. The pressure of the spinal fluid was high, being 550 mm. of water, the cell count was 6 lymphocytes. The temperature remained normal until November 19 and the leucocyte count on November 18 was 10,200 of which 70 per cent were neutrophiles. The possibility of an abscess or neoplasm of the brain was considered because of the history and above findings, and a pneumoventriculogram was suggested, to be done when the respiratory infection had subsided.

However, on November 19 the patient had pain in the right ear, and a chill followed by a temperature of 39.5 C. The right mastoid was doubtfully tender on firm pressure. The leucocytes numbered 11,5000 with 92 per cent neutrophiles in the differential. Therefore a myringotomy was done on the right ear but no pus appeared. In spite of this, roentgenograms were made of the mastoids and that on the left showed evidence of disease, the cell outlines were blurred, the cells in the tip poorly pneumatized, and the bony wall of the sigmoid sinus denser than usual. The leucocyte count remained low, being only 10,200 on November 20, but 90 per cent of these were neutrophiles and on November 20 mastoidectomy was performed under avertin and ether anesthesia. At the second stroke of the gouge pus poured out of a large parasinus abscess. The mastoid cells in the region of the upper bend of the sinus had lost their identity and this region contained pus but there was little of this in the remainder of the mastoid. The remaining bony trabeculae were for the most part intact, and the aditus was apparently sealed off. It was necessary to uncover the dura over an area approximately 5 by 4 cm. in order to expose healthy dura. The dura of the middle fossa seemed normal. Because is was soft and well covered with granulations the sinus was not opened. The internal jugular vein was divided between silk ligatures. The upper end of the jugular bled freely when punctured. The wound was packed lightly with iodoform gauze and a transfusion of 500 cc. of blood was given. Hemolytic staphylococcus aureus was grown from the pus from the parasinus abscess.

The patient seemed to improve, the headache was better, there were no more chills, the temperature dropped daily and was normal 4 days postoperatively. He received fluids by intravenous and subcutaneous injection and, for 2 or 3 days sulfanilamide, but the latter was discontinued because of the cyanosis it produced.

The headache recurred however, necessitating

the use of opiates and on November 25 he became definitely worse, his temperature rose to 39.4, he was irrational and the headache particularly behind the right eye was severe. On November 26, through burr openings, the brain was explored for abscess but none was found. The mastoid wound was reopened, the sinus exposed and pus was noted coming from the sinus. This was then opened widely, a thrombus removed and free bleeding was obtained from the posterior limb of the sinus. This was then packed. It was noticed that the right eye was somewhat proptosed.

The patient expired on the following day. At necropsy, fresh thrombus was present in the remainder of the right lateral sinus, extending past the torcular into the left lateral sinus, and the cavernous and petrosa sinuses were also thrombosed. The petrous portion of the temporal bone seemed healthy. Both sphenoid and ethmoid sinuses were full of pus.

COMMENT

Death may have resulted from sepsis or from the changes in the venous circulation. Thrombosis of the cavernous sinus was probably present or beginning when the severe pain behind the right eye was complained of before the second operation. In the presence of phlebitis of the sinus or of a mural thrombus it is usually sufficient to uncover widely the sinus and all areas of granulation tissue without disturbing the latter. The question whether to open a sinus suspected of being thrombosed is still controversial and some operatives doubt the value of litigation of the internal jugular vein in a case such as this. The occurrence of a chill and fever seemed sufficient indication for ligation of the internal jugular vein, and the subsequent course of this case indicates that a better procedure may have to have ablated the sinus at first operation. In retrospect it seems doubtful whether opening the sinus even in the presence of a field badly infected from a large abscess would have increased the hazard. At the time of the mastoid operation, however, the sigmoid was soft and apparently not occluded as free bleeding occurred from the upper portion of the jugular vein.

The patient evidently had poor resistance to the staphylococcus as shown by the history of long-standing chronic osteomyelitis and by the relatively low leucocyte count in the presence of a 90 and 92 per cent differential. At the second operation and at necropsy the infection may have been widespread throughout the brain. The indications of intracranial pathology which were present were explained by the large parasinus abscess. These obscured the relatively slight symptoms of aural disease. The slight conduction deafness and very slight redness of the posterior margin of the tympanic membrane seem sufficient indication of a preceding otitis media, although no doubt a form which did not long affect the middle ear but passed quickly to the mastoid cells where it became walled off from the tympanum.

It is possible that a myringotomy performed at the beginning of the respiratory infection might have prevented the complicated mastoid disease. At that time, no doubt, the symptoms of disease of the middle ear were very slight. However, a myringotomy often is a preventive of mastoiditis and in doubtful cases it seems better to open the drum.

Green's Eye Hospital.

1938 ANNUAL SESSION

New Mexico Medical Society

La Fonda Hotel

Santa Fe; June 6-7-8

Make your plans now to attend your own state meeting!

Southwestern Medicine

Vol. XXII. May, 1938 No. 5

OFFICIAL JOURNAL
Arizona State Medical Association
New Mexico Medical Society
Southwestern Medical Association
El Paso County (Texas) Medical Society

EDITOR
M. P. Spearman, M. D.
1001 First National Bank Bldg.
El Paso, Texas

ASSOCIATE EDITORS
L. B. Cohenour, M. D. Albuquerque, New Mexico
Orville Egbert, M. D. El Paso, Texas
J. D. Hamer, M. D. Phoenix, Arizona

Two dollars per year 25c single copy

Entered at the postoffice at Phoenix, Arizona, as second-class matter.
Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921.

ADVERTISING OFFICES
A. C. Taylor Printing Company
142 South Central Avenue
Phoenix, Arizona

Eastern Representative:
Cooperative Medical Advertising Bureau
535 N. Dearborn St., Chicago

LET FREEDOM BLUSH

Freedom to do just about as he pleases in matters pertaining to the conduct of his practice has long been the privilege of the American physician. Among other things, he has been free to prescribe and use any drug or serums that he fancied, subject only to the advice of the Council on Pharmacy and Chemistry of the American Medical Association—if he chose to heed it. If he was dazzled by the sales presentations of some manufacturer, pleased by the taste or appearance of some new product, or fooled by the detail man's statement that his product was not council accepted because it would not take large advertising space in the Journal of the American Medical Association, he was at liberty to adopt this new product forthwith, with no restraining hand laid upon him.

Let us see where this freedom has led some of us. Perhaps some of the newer therapeutic agents have been of merit—but just how can an individual practitioner, far from analytical opportunities, be sure which is which among the multitude of remedies offered by the aggressive manufacturers? He is forced to leave scientific paths and deal in the esoteric realm of wishful thinking—a far cry from the methods of thought laid down for him by his professors in the days of his scientific training. Is it fair to sick people to experiment on them with new, untried, unproven products of some manufacturer's greed? To be very blunt, our freedom has allowed just such to happen. No one has ever been bound to follow the recommendations of the Council on Pharmacy and Chemistry, and many physicians have never done so. Many of these rugged individuals cry loudly about the "dictatorship of Dearborn street." Others might be impressed by the "nonsense of the headquarters politicians", but not they. In other words, organized medicine has not been able, despite its "dictators", to keep its own house in order. So now there is a strong movement under way to bring about Federal licensure of new therapeutic vehicles. You and I, through our medical associations, will have no say here. The matter is to be taken from our hands. Had there been a rigid adherence to the recommendations of the Council regarding new remedies, this movement would never have been born. There would have been no need for it.

Tragedy stalked in the wake of "elixir of sulfanilamide"—an unapproved product. Death closed a number of cancer cases recently in Orlando, Florida, following the use of an unapproved cancer serum. Emulation of the ostrich will not solve the dilemma for the medical profession. Some one erred. Some one is directly responsible for these untimely deaths. They could not have occurred if all new products had to be approved by the Council on Pharmacy and Chemistry before they could be used on human beings.

What new product is now steeping and brewing in the pots of some unapproved manufacturer, to be shortly unloaded on the uncritical members of our profession? Is death in the making in some shiny pill, or some gaudy bottle? How can we protect our patients from grief and tragedy sure to follow the indiscriminate use of these unproven offerings? The answer is apparent in what has been said above. If doctors do not choose to follow the recommendations of their own fellows, they are likely to be forced to obey the dictates of a lay agency. And squirm as we like, the general public is holding the medical profession partly responsible for the recent tragedies in this country.

No less a voice than that of the Journal of the American Medical Association itself has called for help in this problem from the Federal government. A recent editorial in this organ should be required reading for all medical men in America.

THE TUCSON SESSION

One of the most successful meetings in the history of the Arizona State Medical Association was that of the 47th annual session concluded last month in Tucson. Attendance marks set a new high, guest speakers were of the highest calibre, entertainment was superb. Local and state committees must be accorded high credit for their interest and selfless hard work in the enterprise of staging a smooth-running scientific gathering.

Guest speakers were: Drs. Albert S. Crawford, Detroit; Jay Davis, Minneapolis; Franklin Ebaugh, Denver; Morris Fishbein, Chicago; S. W. Harrington, Rochester; Leslie Smith, El Paso; John Woolsey, Woodland, California.

Dr. Charles S. Smith of Nogales was named president-elect of the association, to take office at the 1939 session to be held in Phoenix. Other officers elected were: Dr. Leslie Kober, Phoenix, vice-president; Dr. D. F. Harbridge, Phoenix, secretary; Dr. C. E. Yount, Prescott, treasurer; Dr. F. J. Mil-

loy, Phoenix, Councilor for the central district; Dr. J. D. Hamer, Phoenix, delegate to the American Medical Association.

Coverage of the meeting by the daily papers was especially accurate and intelligent. Press releases were handled in a sympathetic, dignified fashion.

The public lecture on "Medicine and the Changing Social Order," given at the University auditorium by Dr. Morris Fishbein, was attended by a large and responsive audience.

The Women's Auxiliary staged a complete program of their own. Mrs. George C. Truman of Mesa was elected president.

Other officers elected were: Mrs. V. G. Presson of Tucson, president-elect; Mrs. J. D. Hamer of Phoenix, first vice president; Mrs. Royal Rudolph, of Tucson, second vice president; Mrs. B. B. Edwards, Tucson, recording secretary, and Mrs. H. T. Southworth, of Jerome, treasurer. Mrs. Hamer was also named delegate to the national medical convention, and Mrs. C. A. Thomas, alternate.

HAL W. RICE, M. D.
President Arizona State Medical Association 1938

At the Tucson session of the Arizona State Medical Association, April 21, 1938, Dr. Hal W. Rice of Bisbee, Arizona, was elevated to the office of president of the association, succeeding Dr. C. R. Swackhamer, of Superior.

Dr. Rice was born September 6, 1887, in Escondido, California. After finishing public school he attended Grinnell College in Iowa for three years. He then transferred to Creighton University, Omaha, Nebraska, where he took his first year in Medicine. From there he went to the University of California, from which institution he took his M. D. degree in 1912. There followed a period of internship at the Los Angeles General Hospital and St. Mary's Hospital, Rochester, Minnesota. Shortly the World War broke out, and Dr. Rice took up service as an officer in the Medical Corps.

Early private practice was begun by Dr. Rice in Santa Monica, California. Later he went to Los Angeles. In 1923 he was appointed chief surgeon to the Phelps Dodge Corporation in Morenci, Arizona. He remained there until 1936, when he was named to the post of chief surgeon to the Copper Queen Hospital in Bisbee, Arizona.

Dr. Rice is a member of the Arizona State Medical Association, the Southwestern Medical Association, the American Medical Association, and Phi Rho Sigma Medical Fraternity. He has held various county society offices in several localities, has engaged in civic work, holding among other offices, that of president of the Morenci school board for a period of eight years.

In 1917 he married Eleanor Millan. Two daughters have been born to Dr. and Mrs. Rice.

MEDICAL EXPENSE INSURANCE

After several years of study on the part of a special committee set up by the New York State Medical Society, there has been presented a plan of medical expense insurance which has been endorsed by the state society and the New York Insurance Department. An enabling act is to be placed before the State Legislature soon.

The idea of the plan is to set up actuarial groups among the population which will insure the individual against the cost of medical and nursing care should he come in need of them during the fiscal year. The sick policy holder would have free choice of physician. When the doctor's bills were presented following the termination of an illness, the insurance group would pay them. The committee of the New York Society says that:

1. The scheme maintains free choice of physician.
2. It does not commercialize medical service.
3. It brooks no political interference.
4. Physicians are subject to control only by their medical societies.
5. Only money is guaranteed—not medical service.
6. Physician-patient relationship is preserved.
7. The plan adjusts itself to the economic standards of participating groups.

Groups of from 1500 to 5000 membership are to be formed. Each individual in the group pays an annual premium to the bonded treasurer elected by the group. This annual premium guarantees to each member a specified sum with which to pay medical, dental or nursing bills in any twelve month period. Hospital costs are not included. The treasurer of the group would keep his books under the supervision of the state insurance department.

It is estimated that the $2,000.00 a year family would pay an annual premium of about $30.00, which would provide annually $400.00 for medical bills, $150.00 for dental bills and $100.00 for nursing bills, should any member of the family stand in need of these services. Bills under $10.00 would not

be paid out of insurance funds. Premiums and coverage of the policy holder would be made commensurate with the family income. Should any physician charge unreasonable fees, he would be answerable to his medical society. The state insurance department would have charge of nothing but the financial and actuarial details.

Much interest has been shown in this plan throughout America. Complete details are as yet not released. No evidence is present of the taints of governmental interference or compulsory health insurance. It appears to be solely an arrangement between the sick man and his own physician, free from the meddling hands of any third party. All physicians will be vitally interested in the experiences of our New York colleagues. Perhaps, should other states see fit to adopt some similar scheme, those experiences will serve well as guidance.

Special Section

Arizona State Medical Association

J. D. HAMER, M. D.
Associate Editor

ANNUAL MEETING

The Annual Meeting as held at Tucson on April 21, 22, 23 was an outstanding success from all points of view. The scientific program was of high order, and entertainment features of appropriate setting. Dr. Morris Fishbein, Editor of the Journal of the American Medical Association, addressed three meetings in connection with the session. On Thursday night he addressed a capacity audience at the University Auditorium on the subject "Medicine and the Changing Social Order." On Friday Dr. Fishbein addressed the House of Delegates and again appeared as guest speaker at the banquet held that evening. Other guest speakers included Drs. Franklin G. Ebaugh, Denver; Albert S. Crawford, Detroit; Jay C. Davis, Minneapolis; Stuart W. Harrington, Rochester; Leslie M. Smith, El Paso, and John H. Woolsey, Woodland, California.

The Annual Meeting for 1939 will convene at Phoenx with specific dates to be announced later.

ELECTION OF OFFICERS

At the recent Annual Meeting of the Arizona State Medical Association the following were elected to office for the coming year:

President-elect.....Dr. Chas. S. Smith, Nogales
Vice-President.....Dr. Leslie R. Kober, Phoenix
Secretary.....Dr. D. F. Harbridge, Phoenix
Treasurer.....Dr. C. E. Yount, Prescott
Councilor, Central District.....
.....Dr. Frank J. Milloy, Phoenix
Delegate to A. M. A.....Dr. J. D. Hamer, Phoenix

Dr. Hal W. Rice, of Bisbee, took the chair as President and will serve in that capacity for the term of office now beginning.

GASTRO-INTESTINAL TUBERCULOSIS

Dr. Joseph Bank, F. A. C. P.

In discussion of intestinal tuberculosis two things must be borne in mind which must be evident to anyone who thinks about the subject.

The first is the tremendous discrepancy between the frequency of intestinal involvement at autopsy, and the diagnosis of such a condition during life. The occurrence of intestinal tuberculosis in patients who die of tuberculosis varies from eighty to ninety per cent. But the accurate diagnosis of such a condition during life does not even approach the figures of the pathologists.

The second problem is to decide when a tuberculous patient with gastro-intestinal symptoms has organic tuberculosis involvement. Not all tuberculous patients with gastric intestinal symptoms have intestinal tuberculosis. It is not unexpected that anyone with prolonged illness like tuberculosis should have gastro-intestinal symptoms. The existence of toxemia must produce some derangement of the digestive tract. The decision when functional disturbance ends and organic involvement begins is not an easy one.

Two important types of intestinal tuberculosis must be recognized, the ulcerative and the hypertrophic.

The site of involvement is usually in the ileocecal region. The ulcerative type is associated with tuberculosis in other organs in about ninety-five per cent of the cases. The hyperplastic type does not seem to be so commonly associated with advanced pulmonary tuberculosis as the ulcerative form. The hyperplastic form is infrequent compared to the ulcerative.

The symptoms of ulcerative type are numerous, but not pathognomonic. Such a patient is known to have pulmonary tuberculosis; he has dizziness, loss of appetite, irritability, abdominal discomfort, and constipation or diarrhea. It has been stated that when a tuberculous patient usually placid, begins to be irritable, nervous and querulous, it is time to think of intestinal ulceration. The fact remains that any of these symptoms, including diarrhea, may occur in a tuberculous patient without intestinal ulceration.

The recognition of the hyperplastic type of intestinal tuberculosis, especially in the early stages, is most difficult without an x-ray examination. The definite diagnosis of this lesion is in most cases a source of pleasure to the physician and the

(Read before Staff of Good Samaritan Hospital, March 28, 1938)

patient because almost always a carcinoma is suspected first. The pain usually experienced by these patients depends upon a variable degree of intestinal obstruction. Loss of weight is common. Often attention is called to the existence of this condition by accidental discovery of a tumor unaccompanied by symptoms severe enough to demand investigation. Palpation of the mass causes pain. Anemia is usually present but it stands out in marked contrast to that found in carcinoma of right half of the colon in which the degree of anemia is much more marked. In carcinoma of the right colon the marked anemia is explained on the basis of greater toxemia.

Because a tuberculous patient is not immune from ulcerative colitis, amebic colitis, carcinoma or actinomycosis the differential diagnosis is important.

Ulcerative colitis begins in the rectum and progresses upwards. The ulcers are characteristic on proctoscopic examination. Tuberculosis colitis always begins in the right side. The x-ray picture of ulcerative colitis is different.

Amebic colitis differs from ulcerative colitis in that the colon is more pliable and not as stiff as the ulcerative colitis bowel. Ameba histolytica are almost always found either in the stool or in the scraping from the ulcer. The ulcers of amebic colitis, when seen through the sigmoidoscope, are characteristic. They are discrete, larger and have normal tissue between.

Carcinoma is often most difficult to differentiate and often the final diagnosis cannot be made until the tumor is removed and a section made.

Diverticulitis may be differentiated by its involvement of a different segment of the colon, being usually on the left side.

X-RAY DIAGNOSIS

The first x-ray sign of tuberculosis of the colon was described by Stierlin in 1911. This phenomenon consists of the rapid passage of opaque material (taken by mouth) through the diseased area with barium present distally and proximally to a clear diseased area of the bowel which is intolerant to opaque material. Because this sign was first noted in tuberculosis, it was for many years thought to be pathognomonic of tuberculosis of the colon. We now know that the same sign may be present in any ulcerated condition of the colon. This principle may be applied in greater detail by making serial examinations at regular intervals from the seventh to the tenth hour after ingestion of the opaque meal. The presence of defects and deformities in the ileocecal region is diagnostic. The diseased area is irritable and spastic and there is hypermobility of barium through the affected segments.

A more recent method of x-ray examination of the bowel is the double contrast method of examination. In this method the colon is distended with air after the patient evacuated the ordinary barium enema. The variations from normal in the manner of insertion of the ileum into the cecum are of diagnostic import. In tuberculous involvement of the ileocecal region, the pointed entrance of the cecum into the ileum is transposed with divergence of the walls to resemble an inverted umbrella. It is known that in almost every case of ileocecal tuberculosis the valve is incompetent. In addition to the deformity in the insertion of the ileum, the upper or lower margins of the ileum may show deformity or the bowel may appear stiff and inflexible. Changes in the orifice may also be noted.

Tuberculosis of the small intestine is usually associated with pulmonary tuberculosis or tuberculosis elsewhere. It is usually confined to the terminal part of the ileum and the proximal part of the colon. The lesion may be a simple non-specific ulcer of the small bowel and may manifest itself as unexplained melena and chronic anemia. In others there may be complete obstruction.

In the treatment of intestinal tuberculosis pneumoperitoneum has been recommended. Those who have used this method advise performance of this operation early and that it is not contra-indicated in the presence of pneumo-thorax. It is claimed that pneumo-peritoneum results in rapid relief of diarrhea, pain, fever and gastric dyspepsia. Sufficient time is necessary to evaluate this form of treatment.

DISCUSSION OF DR. BANK'S PAPER ON INTESTINAL TUBERCULOSIS

by DR. E. W. PHILLIPS, F. A. C. P.

Tuberculosis of the bowel, like tuberculosis of the glottis, used to be considered incurable and of thoroughly bad prognostic import. At the time, this was true, for neither condition was generally recognized in time to do much about it. These two complications of lung tuberculosis are likely to be found together, in cases that are doing badly. In both locations the implantation of tubercle bacilli is probably direct. The patient with a positive sputum, even if he has been trained to be careful lest he swallow any of it, is bound to ingest a certain number of tubercle bacilli. Their presence in the stool, therefore, is not of diagnostic significance as related to involvement of the gut. But when there is ulceration of the laryngeal cartilages the ingested dose of tubercle bacilli is enormously increased, and involvement of the bowel is the rule rather than the exception.

We know now that, so far from being fatal, bowel tuberculosis of not too great extent usually heals kindly if the lung tuberculosis is brought under control. A bland diet with high vitamin feeding is useful; this was empirically introduced by Bray in the cod liver oil and tomato juice treatment. By far the best treatment when it can be done, is to make the sputum negative. In cases that have gone on to extension of this degree, the routine rest therapy is usually past its usefulness. Active intervention to close cavities is in order, and so urgent is this indication that risks should be taken which might not

be considered justifiable if the digestive organs were still intact.

In discussing differential diagnosis, Dr. Bank mentioned, in addition to the functional disturbance of the digestive tract incident to the toxemia of the full-fed invalid on bed rest, the alternatives of ulcerative colitis, amebic colitis, carcinoma and actinomycosis. There is another condition which, in my experience, is more frequent than all the latter group put together; in sanitorium patients it occurs almost as commonly as the functional upsets caused by toxemia. I refer to the intestinal disorders caused by sensitivity to certain foods.

The symptoms of this condition may be indistiguishable from those of intestinal tuberculosis of moderate degree. There is discomfort after eating, which is likely to come on soon after the meal; complaints of "gas", and abdominal distress that may be of sufficient severity to prevent sleep. Belching is common; vomiting is unusual, but when it does occur it is likely to be repeated and intractable. Constipation is more frequent than diarrhea; the conditions may alternate. Nervous irritability caused by the nagging discomfort, occurs just as in bowel tuberculosis. Nutrition is, of course, impaired.

Before subjecting patients to the fatigue and expense of gastro-intestinal roentgenography, food allergy should be ruled out. A careful history, taken by the physician himself, will in more than half such cases show the presence of allergic disease in the family. A persistent eosinophilia is a valuable indicator. Food tests by the scratch method show where the trouble lies in about half the cases; with the modern extracts used intradermally, their efficiency is considerably greater, but test interpretation is much more difficult. Exclusion of suspected foods from the diet is useful in diagnosis, and provides its own proof of accuracy. When the offending foods are removed from the diet, not only do the symptoms cease but the patient begins to gain weight, and this occurs even when the offenders are such essential materials as milk and egg. Because of their excessive use in the diet of tuberculosis, these foodstuffs are among the commonest sensitizers.

MISCELLANY

KEENER VISION

An advertisement in a lay magazine advises that squinting, frowning, or scowling when using the eyes is usually an indication that the eyes need attention, better light, or both. Webster defines these words as follows:

To squint: to have the vision distorted.
To frown: to contract the brows in displeasure.
To scowl: to look sullen or angry.

The need of clearer vision and keener insight into the other man's problems has never been more apparent than in the cases reviewed by your Medical Advisory Committee during the last year.

The squint, the frown, the scowl each have a degree of meaning to the observant person. As the dissatisfied patient of another doctor hangs on every word of his present consultant, so he sees and registers every expression of pleasure or displeasure on the consultant's face.

The average consultant before a malpractice suit does not see the patient until several months after the original injury complained of. Therefore, before giving a positive opinion by look or word, would it not be advisable to obtain all the light possible on the case as procured by the first man, even to the point of a telephone call or personal interview with him?

An hour spent in the study of psychology and economics in the handling of patients could well become a part of every medical man's day.—*Minnesota Medicine.*

MINERAL OIL IN FOODS

The Council on Foods reports that it is well known that liquid petrolatum is not absorbed from the gastro-intestnal tract, and that it yields no calories. Because of these properties, mineral oil is extensively used in the treatment of constipation and, to a lesser extent, in replacing fat in certain foods, chiefly mayonnaise and salad dressings, and a few other products. According to published reports, mineral oil interferes with the utilization of vitamin A by experimental animals. Later reports indicated that the ingestion of mineral oil resulted in a considerable loss of vitamin A to the animal organism if the oil was administered with the source of vitamin A but not if the mineral oil were given at some other time of the day. It was also brought out that different results could be expected with different sources of vitamin A. It is apparent that liquid petrolatum would be a poor vehicle for vitamin A and particularly for provitamin A, and its use in this connection could not be countenanced. On the other hand, it appears that in the amounts usually prescribed and under the conditions which should be observed (not to be taken at mealtime), the effect of liquid petrolatum on the absorption of vitamin A of the human diet probably is of little consequence. When incorporated in foods, however, so that the mineral oil is taken at mealtime, it is obvious that there is danger of interference with the absorption of the fat soluble vitamins. The Council of Foods, therefore, advises strongly against any indiscriminate dosage of mineral oil either alone or incorporated in special foods.—(*J. A. M. A.*)

REAL AND IDEAL MEDICAL GROUPS

"Medical groups" is a favorite phrase with which current medical propagandists would conjure. "Medical cooperators," sickness insurance advocates and many others propose to provide all service through "medical groups." Organized medical groups have a place in the delivery of medical service and have made significant contributions to the progress of medicine, but such groups can never become a substitute for private practitioners. Many studies of illness and its treatment have agreed that not more than from 10 to 20 per cent of illnesses are benefited by being put through the exhaustive investigation and specialist treatment characteristic of group practice. Moreover, not much more than 10 per cent of the 300 or more groups now in existence consists of any such well balanced body of specialists as these advocates of group practice visualize. Only a little over 16 per cent of the physicians in the United States claim to be specialists and these are divided among seventeen specialties, seven of which are represented by less than 700 physicians. Many of these specialists are on hospital staffs or may be members of existing groups. Manifestly these are too few to form enough groups for a national medical service. Over 67 per cent of present groups are in towns of

less than 50,000 populaton and only four of 239 are in cities with more than 1,000,000 population. There is nothing magical about group practice that transforms poor physicians into good ones, makes medical service more available or lessens the cost. The value of the group depends on those who compose it. Group practice has not been combined with sickness insurance in any country; indeed, groups are forbidden by law in Germany, and even partnerships are frowned on in Great Britain.—*Jour. A. M. A.*

SO BLOWS THE WIND!

H. R. 9847, introduced (by request) by Representative Treadway, Massachusetts, proposes to establish a system of compulsory national health insurance under the drection of a Health Insurance Commission consisting of a chairman and not more than four other members, all appointed by the President of the United States. Employees who receive $1,800 or less per year, together with their dependents, will be automatically entitled to the benefits of the act, except agricultural employees and certain others who are members of industrial medical service plans. The commission may, subject to the approval of the President, exempt domestic servants employed in private households, casual and part time employees, and employees in designated establishments, industries or localities. If an employee is a member of any industrial medical health plan that ceases to provide medical services for its members after the act takes effect, he may become entitled to the benefits of the act if he receives less than $3.000 per annum. Any person may voluntarily bring himself and his dependents within the provisions of the act, under such rules as the commission may make. The act is to be financed through a "health insurance fund." Each employer will be required to deduct and transmit to the commission 2 per cent of the amount paid to each employee eligible for the benefits proposed by the act, but not less than 35 cents nor more than 70 cents a week with respect to each employee may be so deducted. In addition, each employer must contribute to the fund 1 per cent of the amount of the wage paid an eligible employee, but not less than 20 cents nor more than 35 cents a week is to be paid by the employer with respect to each employee. The bill contemplates the supplying of a complete medical and hospital service to persons insured under the act and to their dependents. The commission may provide such services in any manner it may deem expedient. If it thinks it advisable, the commission may permit medical service to be administered by a physician selected or employed by the insured person. A physician employed by an insured person or by the commission will, it is proposed, be paid (*a*) on a salary basis or (*b*) at a fixed rate per annum for each insured person for whom the physician has accepted the responsibility of providing services or (*c*) on a fee basis or (*d*) any combination or modification of the foregoing. Any physician who fails to provide services according to the standards prescribed by the commission may not only be barred from thereafter rendering any service to insured persons but also will become subject to a fine of not less than $100 nor more than $500. The appointment of state health insurance directors is contemplated and technical advisory councils to assist and advise the commission and the state health insurance directors. In addition to the other duties developed on the commission it will be authorized to organize and administer voluntary hospital insurance plans in cooperation with any hospital that desires to participate. The bill was referred to the House Committee on Interstate and Foreign Commerce.—*J. A. M. A.*

"OF SUCH IS THE KINGDOM"

About six weeks ago one of the big broadcasting systems of the country opened its service to a doctor who had come over from England to see about the filming of a novel he had written. This gentleman admitted that he had only been *six weeks* in America, yet he filled the public ear with a lot of bunk about the advantages of so-called group practice as it is worked out in England. The English workingman has never had the advantages of American standards of life, from beefsteaks to bathtubs and certainly not in medical practice. Yet this visiting Briton had the audacity to disregard the old Arab law of bread and salt, and to knife his American brethren in the back by painting a beautiful picture about what group practice could do for a man. He said in one insiance.

"A patent coming to such a group is placed immediately in the hands of an expert specially qualified to deal with his particular case."

As if America didn't do it better in every way, as the highest of British medical authorities admit. Further this doctor claims that group practice would rid the general practitioner of a "dog's life" and "give the patient a better deal as well.'" Then he turned on the works and went out in his sympathies for the "white collar class" who, after six weeks in America this visiting Englishman declares, do not have good medical service though "the very rich and the very poor do." It is true that later in his speech this doctor made some half-way temporizing remarks. But in the face of what had gone before they were not of the weight of a picayune.

It would be wonderful to note what the effect would be if department stores, food stores and landlords were besought to be permitted to tax themselves into destitution so that the government could control their shops. More men and women suffer from hunger than from lack of medical care. Starvation and exposure cause more ills in a week than a thousand doctors can cure in a month. It is apropos to quote that Illinois physician, who after having listened to our British brother over the microphone wrote to the editor and said:

"Give our people a chance to work and lessen the cost of government and our profession will care for the sick and our patients will take care of their doctors. Let the government give what the administration cost of Federal controlled medicine would be to those who are sick and that would pay the physician and save the government the cost of medical service."

But it wouldn't of course—and that is the hitch with the bureaucrats.—pay salaries of any political henchmen who would have fat jobs by entering into the practice of medicine by virtue of political favor rather than by scientific attainment, as will happen when medicine comes under lay control of the ward heeler. Believe it or not, of such is the kingdom of state controlled medicine.—*Illinois Med. J.*

NEW AND NON-OFFICIAL REMEDIES

Brucella Melitensis Vaccine (See New and Non-official Remedies, 1937, p. 408).

Abbott Laboratories, North Chicago, Ill.

Brucella Melitensis Bacterin-Abbott.—A heat killed suspension of Brucella melitensis (var. abortus) organisms (2.000 million per cubic centimeter prepared by using the bovine strain only and preserved with 0.5 per cent of phenol. The usual sterility tests prescribed by the National Institute of Health are made. The purity of the cultures is determined before the vaccine is made by complete cultural characteristics and agglutination tests with specific serum. Safety tests on the stock vaccine are made by injecting two white mice with 0.5 cc. each subcutaneously, two guinea pigs with 1cc. each intraperitoneally and one guinea pig with 5 cc. intraperitoneally, the animals being observed for ten days. No potency tests are made. The product is marketed in packages of one 6 cc. vial and in packages of one 20 cc. vial

Dosage—The subcutaneous injection of 0.25 cc., increased gradually to 1 cc. in five or six injections at three day intervals, is suggested.

Neo-Synephrin Hydrochloride (See New and Non-official Remedies, 1937, p. 224).

The following dosage form has been accepted:

Solution Neo-Synephrin Hydrochloride, 1 per Cent (for parenteral use): A sterile solution of neo-synephrin hydrochloride 1 per cent and sodium chloride 0.8 per cent, in distilled water.

Pontocaine Hydrochloride (See The Journal, Aug. 7, 1937, p. 433; also the Revised Supplement to New and Non-official Remedies, 1937, p. 7).

The following dosage form has been accepted:

Pontocaine Hydrochloride Tablets 0.1 Gm: Each tablet contains pontocaine hydrochloride 0.1 Gm., boric acid 0.005 Gm., acetone sodium bisulfite not more than 0.0002 Gm. To be used only for preparing solutions for surface anesthesia (not for injections) in rhinolaryngology, ophtalmology and denstistry.

Dextrose (See New and Non-official Remedies, 1937, p. 155.

The Abbott Laboratories, North Chicago, Ill.

Dextrose 2½% in Physiological Sodium Chloride Solution: Each 100 cc. contains dextrose, U.S.P., 2.5 Gm. and sodium chloride 0.85 Gm. marketed in bottles containing 500 and 1,000 cc.

Dextrose 20% W/V in Distilled Water: Each 100 cc. contains dextrose U S.P., 20 Gm. Marketed in bottles containing 500 and 1.000 cc.

Dextrose, U.S.P., 25% W/V in Physiological Sodium Chloride Solution: Each 100 cc contains dextrose, U.S.P., 25 Gm. and Sodium chloride 0.85 Gm. Marketed in bottles containing 500 and 1.000 cc.

Sulfanilamide (See The Journal, July 31, 1937, p. 358; Oct. 30, 1937, page 1454, and Revised Supplement to New and Non-official Remedies, 1937, page 27).

Sulfanilamide-Mallinckrodt.—A brand of sulfanilamide-N. N. R.

Manufactured by Mallinckrodt Chemical Company, St. Louis, No U S. patent or trademark.

Mead's Oleum Percomorphum (see New and Non-official Remedies, 1937, p. 472).

The following dosage form has been accepted:

Mead's Compound Syrup Oleum Percomorphum: An emulsion of oleum percomorphum 0.65 per cent, olive oil 23.2 per cent, malt syrup 65.35 per cent, with water 8.1 per cent, alcohol 2.1 per cent, pectin 0.4 per cent and gum tragacanth 0.2 per cent (percentage by weight). The mixture is standardized by biologic assay to have a potency of not less than 780 U.S.P. vitamin A and 110 U.S P. vitamin D units per gram (respectively, 28,000 and 3900 units per fluidounce.).

NEWS

General

The Chicago Tumor Institute, 21 W. Elm St., opened March 21, 1938. It will offer consultation service to physicians in the diagnosis and treatment of cancer and radiation facilities for cancer patients.

The Institute also proposes to conduct research and to offer training to physicians who may wish to qualify as specialists in the study and treatment of this disease.

The oral clinical, and pathological examinations for Group A and Group B applicants will be held in San Francisco, California, on Monday and Tuesday, June 13 and 14, 1938, by the American Board of Obstetrics and Gynecology.

An informal dinner for the Diplomates of this Board, their wives and others interested in the work of the Board, will be held at the Palace Hotel, San Francisco, on Wednesday evening, June 15, 1938, at seven o'clock. Dr. William D. Cutter, Secretary of the Council on Medical Education and Hospitals of the American Medical Association, will address the group, and the successful candidates of the preceding two days' examinations will be introduced in person. Tickets, at $2.25 each, may be obtained in advance from Dr. Joseph L. Baer, 104 So. Michigan Avenue, Chicago, Illinois, or at the door. Reservations should be made in advance if possible.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

The American Rheumatism Association will meet this year on Monday, June 13th, in Toland Hall, University of California Hospital, San Francisco, at 9:30 o'clock

---

New Mexico

Meeting of the Lea County Medical Society was held at the Hardin Hotel at 7:30 p. m. and was called to order by the president, Allen P. Terrell, M. D., following the dinner.

Minutes of the previous meeting were read and approved. The constitution and by-laws were read before the group. There were a few amendments suggested. It was moved and seconded that they be accepted. The motion carried. Dr. Miller moved that the society meet once a month for the twelve months during the year. The motion carried as an amendment to the constitution and by-laws. Dr. J. E. Tremaine moved that the entrance fee be $15.00 and the annual dues be $12.50, which includes the State dues of $10.00 with the balance remaining in the treasury of the local society. Both of these motions were carried and adopted in the By-Laws. Dr. Stone was nominated by Dr. Barzune as a two-year delegate and Dr. Terrell was nominated by Dr. Gillett as an alternate, both being elected.

Three members of the Board of Censors were elected. Dr. Hodde was elected to the three-year term, Dr. Gillett to the two-year term, and Dr. Barzune to the one-year term.

The chairman instructed the secretary to make application for a Charter, having each member sign and mail same to the secretary of the State Medical Society with a copy of the Constitution and By-Laws. He was further instructed to find out if the doctors in the neighboring counties in Texas have an organized society. If not, to invite them to become members of our local society.

A committee on Public Health and Legislation was appointed by the President, consisting of Dr. Terrell, chairman, and Dr. Gillett and Dr. Tremaine, members. The secretary was ordered to report committees to the State Society, and to the American Medical Association.

A rumor of the city water supply beng contaminated at Eunice was reported by Dr. Barzune, discussed by the society and the consensus of opinion was that a specimen be collected for the State Laboratory. Informal discussion was held in regard to

speakers, papers and moving pictures, which was well received and the society will look forward to an interesting and instructive program year.

Letters of acceptance as guest speakers for the May meeting were read from Louis W. Breck, M.D., and Leslie M. Smith, M.D., of El Paso, Texas, before the society.

Dr. Jos. Holt, of Dallas, Texas, was a guest at the meeting.

Members of the society present were: Drs. Allen P. Terrell, Benj. Barzune, D. C. Badger, W. E. Badger, J. E. Tremaine, R. D. Haire, C. F. Miller, A. C. Shuler, H. W. Gillett, H. W. Hodde and C. S. Stone.

El Paso County

(Texas)

Members of the El Paso Society will no longer participate in the examination of babies and children at Baby Shows, according to a resolution passed by the Society and approved by the Executive Board in a session last month. Reasons for this action were that it is considered to be contrary to public health interests to encourage the gathering together of large groups of children under 6 years of age and members also objected to lay groups advertising that the medical profession would give of their time and knowledge in the furtherance of these schemes without first consulting with the medical group.

The annual free pre-school round-up which has been under the fire of many physicians for some time has been abolished in El Paso by an action of the city school board. Hereafter in place of hundreds of small children being rushed through an examination satisfactory to neither parent, physician or school board, they are to be cared for by the family physician in his own office. All physicians are being requested to co-operate in the fullest measure with this new ruling of the El Paso city schools.

Dr. F. O. Barrett has been elected to Fellowship in the International College of Anesthetists and in the American Society of Anesthetists.

Juarez, Mexico Medical Society entertained the medical officers of Fort Bliss and the El Paso County Society at dinner at the Tivoli in Juarez on the night of March 22. Various speakers stressed the cordial relations existing between the Mexican and the American members of the medical profession. Musical entertainment was provided. Nearly 200 physicians were present.

Drs. Wick Curtis, John Morrison, Raymond Hughes and M. P. Spearman presented the scientific program of the Grant County, New Mexico, Medical Society meeting at Ft. Bayard on the night of March 25. They were entertained at dinner before the meeting by Dr. Randolph E. Watts, president of the Grant County Society. Following the session the officers of Ft. Bayard gave a buffet supper for the guests at the quarters of the Commanding Officer.

At the semi-monthly dinner meeting of the El Paso Society on March 28, the following program was given:

1. Allergy—A Problem of Immunity to Infection.
   Dr. Orville Egbert.
2. Relationship between Allergic Reactions and Organic Lesions with Particular Reference to Appendicitis and Colitis.
   Dr. L. O. Dutton.
3. Aneurysm of the Pulmonary Artery.
   Dr. W. W. Waite.

Under the auspices of the El Paso County Society, Dr. Morris Fishbein, editor of the Journal American Medical Association, delivered a lecture before a meeting open to the general public in Liberty Hall, El Paso, on the night of April 20. On the following morning he spoke before the students of New Mexico A and M at Mesilla Park, stopping there on his way to Tucson, where he made several public appearances as a guest of the Arizona State Medical Association.

At the April 11 session of the El Paso County Society the following program was presented:

1. Industrial Poisons.....Dr. J. Rodge
   El Paso being the center of a mining district presents the hazards of industrial poisons. The diagnosis, prevention and method of treatment of lead intoxication received particular attention in this discussion.
2. Industrial Surgery—with special reference to preliminary care of traumatic accidents with a review of danger signals....Dr. Felix P. Miller
   Industrial surgery has long since reached its height in surgical practice and must be regarded as both a surgical and medical problem account of far reaching complications.
3. Functional Hypoglycemia in Children.....Dr. J. Travis Bennett
   Differential diagnosis of convulsions and the essayist's exact method of treatment.

AUXILIARY NEWS

Maricopa County

(Arizona)

The Maricopa County Auxiliary spent a very delightful day April 14th in the home of Mrs. George Truman, Mesa. Hostesses assisting Mrs. Truman were: Mrs. P. J. Scherr of Mesa, Mrs. James Meason and Mrs. Lawrence Von Pohle of Chandler, Mrs. George Irvine and Mrs. Ernest Pohle of Tempe. A business meeting took place in the morning at which yearly reports were given and officers elected for the coming year.

Mrs. O. W. Thoeny will be the new president, Mrs. Carlos C. Craig first vice president, Mrs. W.

Jewell Smith second vice president, and Mrs. Thomas H. Bate, Jr., secretary-treasurer.

Delegates for the State Convention to be held in Tucson April 21st were appointed by the president, Mrs. George Thorngate. Mrs. O. W. Thoeny, Mrs. J. D. Hamer and Mrs. Thorngate will be the delegates and the alternates will be Mrs. Carlos C. Craig, Mrs. Charles W. Sult and Mrs. John Pennington.

The May meeting will be a chuck wagon picnic supper held at the desert home of Mrs. Ralph Palmer Friday, May 13th. The Maricopa County Medical Society will be the guests and special entertainment is being planned for the large number planning to attend.

Mrs. Thomas H. Bate, Jr.

ARIZONA AUXILIARY WINS AWARD

Mrs. C. R. Swackhamer, chairman of the HYGEIA Committee, reports that for the second year in succession the Auxiliary of the Arizona State Medical Association has won the district award of $50 for securing the most subscriptions to HYGEIA. For the purposes of this contest, the Auxiliaries of the American Medical Association are divided into three districts, each district being awarded the prize mentioned for the most successful promotion of HYGEIA. Continued and more extensive cooperation on the part of the members of the Arizona State Medical Association in aiding in this work will increase the success of the Auxiliary in this work and bring further recognition to Arizona.

BOOK NOTES

TREATMENT IN GENERAL PRACTICE: By Harry Beckman M. D.. Professor of Pharmacology at Marquette University, School of Medicine, Milwaukee. Wisconsin. Third Edition, Revised and Entirely Reset. 787 pages. Philadelphia and London: W. B. Saunders Company, 1938. Cloth, $10.00 net.

This third edition of a most valuable guide to treatment of most of the ills to which man is prey is up to date within the past few months of the year 1938. New chapters have been added, others completely revised. Admirable and sure to prove helpful is the way in which explicit directions and reasons therefor are written. The question of the practitioner as to what to do when the diagnosis is made is answered fully. Naturally the man in the field wants to give his patients the benefit of all that is new, but few of the active practitioners have the time or the means with which to investigate the voluminous reports of work being done in the medical centers. In this volume, absorbing in its literary style, replete with references, can be found all that is new in addition to the old, time-proven methods

As the author states in his preface, treatment is all too often subordinated to diagnosis. Medical men these days come out of their colleges highly trained in diagnosis, but are apt to be notably weak in their attack on the diagnosed condition. Thorough study of this book would remedy much of that painful deficiency. Treatment these days must not embrace catnip tea and sulphur-molasses methods. The general physician loses too many patients to the specialists because they become imbued with the idea that only the specialist is abreast with modern methods of treatment. That means loss of prestige and loss of fees to that bulwark of American medicine, the family physician.

The new drug, sulfanilamide, is thoroughly covered. Proprietaries, such as mapharsen and bismarsen, are discussed, and rightly, because many of these preparations are in daily use by the men in the field. Especially complete is the chapter on the treatment of syphilis. References to the C. C. G., a scientific committee which has contributed greatly to the present knowledge regarding syphilis, are frequent. The author does not seize all new ideas in fervent embrace. He cautions against acceptance of methods that are controversial, as the ionization treatment of hay fever, which is still *sub judice*.

In short, few places exist where a ten dollar bill can be invested with better wisdom than in the purchase of this book.—*M. P. S.*

MANAGEMENT OF THE SICK INFANT AND CHILD. Langley Porter and William E. Carter, Ed. 5, St. Louis, 1938, The C. V. Mosby Company, pp. 874, price $10.00.

As stated by the authors in the foreword, their book deals almost exclusively with infants, only casual references being made for the most part to children over two years old.

Despite the many pediatric books now available, both new and revised, this book probably remains the largest single volume that concerns itself almost wholly with infants.

It has included up-to-date material on the Vitamins, and the various uses of sulfanilamide. It reflects the modern pediatric attitude in the importance which is given to a knowledge of Behavior, on which there is an excellent chapter.

In the course of the revisions an occasional discrepancy has crept in as between the newer portions and the older unrevised parts, though not enough to constitute a maior criticism of this fifth edition.

The arrangement of Part I by symptoms is a very useful approach for clinical use. The treatments given are specific and concise. Perhaps it is not a fault but a virtue in this type of text that the treatments suggested are offered in a didactic manner without explanation of their rationale though many of the treatments differ. sometimes radically, from accepted pediatric practice in other sections. Personal opinions of the authors are sometimes stated as if they were proven facts. Occasionally a statement is made which is even contrary to what is accepted on the basis of actual published work on the subject. Examples of methods and opinions expressed by the authors in which the validity or wisdom of the assumed facts might be in doubt are: that qualitative abnormalities of the breast are "especially fertile sources of emesis;" the use of subtemporal decompression in new-born infants suffering from intracranial hemorrhage; that laying the baby on his face will so strengthen the back muscles as to prevent later postural deformities; the definition of cephalhematoma as an accumulation of blood in the loose areolar tissues of the scalp.

Part II takes up the diseases by anatomic systems and includes chapters on Behavior, Allergy, and the Infectious Diseases. The chapter on infectious diseases is particularly well written and the various accepted therapies and preventive measures judiciously reviewed and the authors' preferences stated.

Part III includes the details of diets, prescriptions, and the technics of various diagnostic and

therapeutic measures that the authors have found useful in years of pediatric experience. It is a practical and useful section.

—*I. M. E.*

MAN AGAINST HIMSELF, by Karl A. Menninger, author of The Human Mind; Harcourt, Brace and Company, New York.

Menninger's theme is that man has an instinct in the direction of death and usually a greater opposing instinct for living; the battle goes on until the death instinct conquers. Much good may be done others by almost every person through an encouraging smile, a hand clasp, a cheery remark, a boost of one sort or another, to lift mental depression and perhaps frustrate urges for self-destruction. The titles of certain chapters which will help to give the contents of the books are: neurotic invalidism, alcohol addiction, antisocial behavior, self-mutilations, malingering, poly-surgery, purposive accidents and impotence and frigidity.

The author is entertaining and convincing, although one may not agree with his concept of psychology. He is a follower of Freud and states that his hypothesis is but a reiteration and a reaffirmation of the theories of this remarkable psychoanalyst. The use of case histories at frequent intervals makes for fascination and instruction. Menninger is always worth reading.

—*O. H. B.*

A BIOLOGICAL APPROACH TO THE PROBLEM OF ABNORMAL BEHAVIOR, by Milton Harrington, M. D., Psychiatrist, Institution for Male Defective Delinquents, Napanoch, N. Y., formerly Consultant in Mental Hygiene, Dartmouth College; Distributed by the Science Press Printing Company; Lancaster, Pa.; 1938.

The reading of this book removes some of my inferiority complex which had developed because I had never been able to follow the average discussions on psychoanalysis or to appreciate the courses in psychology which years ago I was forced to take. Having reached the study of mental diseases after having been fairly well schooled in psychology, considerably more than that of the regular medical course, it had never occurred to me that psychoanalysts and the new school of psychologists did not take into consideration and base their deductions upon the structure and physiology of the body, especially of the nervous system.

Harrington builds his theory on the mechanism and the action of the human body. The body has cells of various organs doing various sorts of work and in order that the whole function as a coordinated unit there has to be a special tissue for coordination. That tissue is the nervous. Some sort of impulses—as chemical, electrical or some other energy—pass over the nerve tissue from one part of the body to another. The nerve tissue, however, is supplied by blood and lymph and hence is susceptible of being affected, stimulated or depressed, by chemicals, hormones, drugs, split-proteins, other food chemicals, waste products, etc.

If an individual has a structural defect of his body especially of his nervous system, he will have a different normal (for him) than that of the individual with a perfect nervous system. Abnormal, hormones, digestion, elimination of waste, use of chemicals which may come in foods, drink or otherwise, may change what would be a normal psychology to an abnormal one.

The impulses whch pass over the nerve cells and which in some way build up into what makes the mind forming a complex structure—if we may so speak of the nerve-cell 'changes" which make "thoughts, feelings and actions." Impulses originate because of stimuli which have reached the body. As the stimuli are numerous and bizarre the impulses are apt to be equally varied. Certain brains deal with impulses reaching them in a manner to keep all well coordinated and handled in a manner that we call sane while others fall short of this. The failures may not be recognized or they may be classed as neurotics or psychotics or even as insane.

On such a theory of mind, psychoanalysis ceases to be past the comprehension of the ordinarily trained physician; hence helping disturbed individuals, while not easy, can be attacked intelligently and at a time when good may be accomplished.

The author has made a most readable book—not as readable however as it would have been had he boiled down his manuscript, cutting out unnecessary words, of which there are many. His style, however, is good and the subject matter is entertaining as well as instructive.

Were physicians to study Harrington's ideas and apply them on their patents especially in getting parents to understand their children, inestimable good would be accomplished.

The publisher has done an excellent job. The type is easy to read; the paper is light and although there are 459 pages the book is light and easy to hold, although one is reading it in bed.

The book is good bed-time reading. All physicians should make use of it.

—*O. H. B.*

THE BUSINESS SIDE OF MEDICAL PRACTICE, by Theodore Wiprud, Executive Secretary of The Medical Society of Milwaukee County; Lecturer in Medical Economics at the Marquette University School of Medicine. 177 pages with 21 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $2.50 net.

This is a book which every young physician and many older ones should have. It contains a world of practical material that many of us have had to learn in the "school of hard knocks." Titles of chapters give a fair coinception of the contents and are as follows: personal efficiency, office management, financial records, case records, accounts, the legal side of accounts, charity patients, investments, wills and estates, the doctor in court, preparation of manuscripts, public speaking, relations with press, public affairs, conducting a meeting, FAIR COMPETITION AMONG PHYSICIANS (capitals ours), and building a practice. Is there any physician who will not wish to read the story on all of these subjects? Any physician who wishes can skip the chapter on investments if he is like many of us with nothing to invest, or if it makes him ill to read such matters—reviving old memories—or if he is the occasional fortunate one who does not need such advice.

—*O. H. B.*

CANCER AND DIET—With Facts and Observations on Related Subjects, by Frederick L. Hoffman, LL. D.; The Biochemical Research Foundation of the Franklin Institute, Philadelphia; The Williams and Wilkins Company; Baltimore; 1937.

The theme of the book is expressed in the following quotation from page 119: "As I view the cancer problem in the light of many years of study and reflection upon an immense mass of data, more or less conflicting, I am impressed most with the views of those who consider the problem of malignant new growths one of the biochemistry of the body affected by the artificial conditions of modern industrial and urban life, and that therefore the so-called cause or causes of cancer must be sought for chiefly in the field of human nutrition widely divergent from the normal nutritional effects of the past."

Let not the reader think that because the author

is not a physician that the book is not worthy of serious consideration by physicians and especially by those keenly interested in the cancer problem This last phrase should include all of us.

The book has 767 pages with many tables and much quoted material in 8-point type; the main text is in 10-point. All is easy to read. There is an index of authors and subjects which seems unusually complete and usable.

After assembling and digesting pages and pages of observations from authorties in various branches of the medical profession the author says: "I am absolutely convinced that the underlying cause of cancer is to be found in an excessive intake of foods of a high organic or mineral content, or generally of an alkaline base instead of acid. The caloric intake is shown to be excessive in cancer patients who are not in need, in adult life, of so much energy yielding foods in view of diminished exertion and the almost universal use of mechanical equipment diminishing the amount of bodily exertion generally."

This book is recommended as thought-provoking, and worthy of a careful perusal by all physicians and others interested in the cancer problem.

—*O. H. B.*

The Mouth Gag

(Things pertinent and impertinent)

Physicians are invited to submit items of a humorous nature for this column. Please send them to the editor, indicating source, if not original.

GOOSE'S USES
Harley Yandell
Phoenix.

Grand Ma Smells-the-Earth, an Indian mid-wife at Laguna, N. M., got in a hurry and instead of "using instruments" or doin' a Cesarean, she jumped, landing on her knees on the abdomen of her granddaughter, and the baby had to be born right away. . . Well, the entire area, you know the canal, was ripped open. . . The hemorrhage was controlled by burnt goose feathers stuffed in. . . I didn't get there in time to see the broad jump, but I got to smell the feathers. . . And you ought to have seen me do the sewing work. . . I used every kind of thread and needle I had, and every sort of knot that's in the book. This occurred before I got to be a "snoot feller"—(it helped to make one out of me). Did she get an infection? Not a bit. A physician of Albuquerque did a beautiful Cesarean about the same time I had my jumpin' case, but his'n didn't get well as quick as mine. Only in the Indian Service can you get such experience. This is a true story.

NANNY BERRIES
F. D. Vickers
Deming

Mentioning nanny berry tea for measles, brings to mind an ointment made by a nice friendly old German woman patient of mine in the Mohawk Valley, New York, years ago.

With this magical ointment, she kindly treated her neighbors superficial ills, and I became friendly with her and she condescended to tell me the ingredients of this ointment. The content, of most interest ,was the white end of hen manure. I presume the white part is urea. Now we use urea ointment, since allantoin of maggot origin is chemically the same as urea.

So you see the old lady had advance scientific insight.

THE DOCTOR'S HOBBIES
Harley Yandell
Phoenix.

A doctor writes in: "I think I have about perfected an aphrodisiac of a hormone originating in the bumble bee which, when injected into the chinchilla will convert them into rap dity of births a great deal like the gunea pig." Note: the chinchilla is worth about $1700 each right now.

Another writes in and says: "I am a jail physician (he didn't say how long) and I have a cockroach farm out in the Ozark hills. Some of my purest strains of roaches will measure seven inches long and they stand four inches high. I took four of them back to jail with me a few days ago, and I am having a great time teaching them how to carry matches and cigarettes to the jail birds."

Still another writes in: "I am going for rattlesnakes in a big way. I have more than four hundred now. I have learned how to hug their necks, get their poison and not get bit. I am not raising them for their meat. I believe I have found a cure for allergy. Soon as I go a little further in this I'll write you again. I'll only tell you this much at this time—one drop of their venom in a gallon of water distilled from vinegar is the stock solution. One drop of this injected hypodermically in each of ten monkeys caused the complete abeyance of the worst cases of house dust allergy that I have ever seen in a monkey."

MEDICINE MADE EASY
J. W. Cathcart
El Paso.
(Found in a quack's sales manual)

Electronic medicine is the restoration of human equilibrium by Resonant electric waves without the use of drugs or surgery. But the restoration of human equilibrium depends entirely upon the RESONANCE or PERSONAL RATE, that human body, or disease in that body, vibrates. Any other vibration will do no good, but may do harm.

The personal rate is that frequency which will most readily be absorbed by the patient in accordance with the law of RESONANCE. "Whenever an Electro-Magnetic wave—or any other energy—meets in its path a substance that vibrates at the same frequency that wave is stopped and its energy is absorbed by the substance that stopped it." (See Soddy's Law.)

When a body is vibrating at a normal rate, resistance is strong, and no disease can exist in it for any length of time: by assisting a body toward normalcy by application of RESONANT FREQUENCIES or HARMONIOUS RATES, nature is asssted and given a chancce to eradicate the trouble.

The dreams of the first Electronists were to control cancer and other dangerous diseases with the crude instruments that they made. Their dreams are now rapidly being realized by those who are

(Continued on page 196)

Control of Syphilis!

A most important factor in the diagnosis and control of syphilis is reliable blood, darkfield, and spinal fluid examinations.

We run daily Wassermann (Kolmer modification) and Kahn tests.

Results are sent the referring physician by wire (at our expense) when requested to save time.

A supply of Keidel tubes for blood withdrawal, in mailing containers, sent cheerfully on request.

Wassermann $3.00

Wassermann and Kahn $5.00

Turner's Clinical & X-Ray Laboratories

First National Bank Building

EL PASO, TEXAS

GEORGE TURNER, M. D. DELPHIN von BRIESEN, M. D.

The Mouth Gag—Continued

using the most powerful and up-to-date electro-zone apparatus.

This apparatus is called SOMA-RAY of NICHOLIN. It is the greatest improvement in Electronic treatment machines. It is SAFE to use by everybody, because with SOMA-RAY the patient is treated with his OWN Personal rates, which are picked up by a special plate, conducted by means of an insulated wire into the apparatus, where they are automatically amplified, rectified and transformed into resonant frequencies or a Personal Rate of Vibration. And these Resonant Frequencies act as destructive rates of vibration upon disease; all diseases, be they one or twenty!

Directory

SOUTHWESTERN MEDICAL ASSOCIATION

LeRoy S. Peters, M. D.—Albuquerque, New Mexico
President

J. W. Cathcart, M. D.—El Paso, Texas
1st Vice-President

Wm. Thearle, M. D.—Albuquerque, New Mexico
2nd Vice-President

Orville Egbert, M. D.—El Paso, Texas
Secretary-Treasurer

Howell S. Randolph, M. D.—Phoenix, Arizona
President-elect

1938 Session—El Paso

ARIZONA STATE MEDICAL ASSOCIATION

Hal W. Rice, M. D.—Bisbee, Arizona
President

Leslie Kober, M. D.—Phoenix, Arizona
Vice-president

D. F. Harbridge, M. D.—Phoenix, Arizona
Secretary

C. E. Yount, M. D.—Prescott, Arizona
Treasurer

Charles S. Smith, M. D.—Nogales, Arizona
President-elect

John Bacon, M. D.—Miami, Arizona
Chairman Medical Defense Committee

Jas. H. Allen, M. D.—Prescott, Arizona
Councilor Northern District

F. J. Milloy, M. D.—Phoenix, Arizona
Councilor Central District

E. C. Houle, M. D.—Nogales, Arizona
Councilor Southern District

1939 Session—Phoenix

NEW MEXICO MEDICAL SOCIETY

Geo. W. Jones, M. D.—Clovis, New Mexico
President

E. W. Fiske, M. D.—Santa Fe, New Mexico
President-elect

Geo. T. Colvard, M. D.—Deming, New Mexico
Vice-President

L. B. Cohenour, M. D.—Albuquerque, New Mexico
Secretary-Treasurer

1938 Session—Santa Fe, June 6-7-8

EL PASO COUNTY (TEXAS) SOCIETY

Geo. Turner, M. D.
President

Jas. J. Gorman, M. D.
Vice-President

Walter Stevenson, M. D.
Secretary-Treasurer

BOARD OF MANAGERS SOUTHWESTERN MEDICINE

Arizona State Medical Association:
Hal W. Rice, M. D.—Bisbee, Arizona
D. F. Harbridge, M. D.—Phoenix, Arizona
(Secretary-Treasurer)

New Mexico Medical Society:
W. B. Cantrell, M. D.—Gallup, New Mexico
Geo. T. Colvard, M. D.—Deming, New Mexico
(Chairman)

Southwestern Medical Association:
Howell Randolph, M. D.—Phoenix, Arizona
J. W. Cathcart, M. D.—El Paso, Texas

El Paso County (Texas) Medical Society:
Paul Gallagher, M. D.—El Paso, Texas
L. O. Dutton, M. D.—El Paso, Texas

INDUSTRIAL PHYSICIANS MEET

Preventive medicine will be the keynote of the 23rd annual meeting of the American Association of Industrial Physicians and Surgeons which will be held concurrently with the Midwest conference on Occupational Diseases at the Palmer House in Chicago, June 6th, 7th, 8th and 9th, 1938.

Advance programs of the meeting are available to any doctor interested and will be sent without charge to any practicing physician interested in attending this meeting. The sessions will be open to any practicing physician in accordance with the educational program of the Association to spread the propaganda of preventive medicine and absenteeism of employees.

For an advance copy of the program or for information on exhibits, address—Mr. A. G. Park, 540 No. Michigan Avenue, Chicago.

REFRIGERATION IN RELATION TO HEALTH

Refrigeration should be of interest to the medical profession. The doctor is interested in proper diet and its relationship to health; and refrigeration is necessary to properly protect foods that go into the proper diet. The doctor has treated many cases of ptomaine poisoning and many of these cases probably resulted from inadequate refrigeration of foods. In fact, a number of common ailments can be traced to lack of proper food protection.

Ice refrigeration is still the most popular type of refrigeration and is used today in a majority of the homes and stores of the nation. In addition, over a million car loads of fresh perishables move from source to market in the average year and every refrigerated shipment is protected by ice.

The modern ice refrigerator—the *air-conditioned* ice refrigerator—differs from other types in the manner in which it protects foods. It does more than just keep foods cold. It gives 3-way protection—constant cold, proper moisture and clean-washed air.

Air-Conditioned Refrigeration

Naturally, you'd expect a refrigerator to keep foods cold—for cold is needed to retard the growth of micro-organisms and bacteria which cause spoilage and decay. The modern ice refrigerator will keep foods well within the Safety Range of 40 to 50 degrees—recommended by scientists for proper preservation of foods in the home.

The air in the refrigerator circulates constantly—from the ice compartment to the food compartment and back again. The air is chilled as it passes the surface of the ice, which is always 32 degrees. The coldest section of the food compartment is directly under the cold air drop, and a slightly higher temperature will be found in the part of the refrigerator where the air re-enters the ice compartment.

Scientific design and proper insulation account for the "under fifty" temperatures. The other reason, and a very important one, is that *ice is used in an entirely new way.* Only the under surface of the ice is used for cooling purposes. The ice melts flat, from the bottom up, and the air circulates *under* the ice. Thus, whether the ice chamber is full or nearly empty, the same amount of cooling surface is exposed and low temperatures are maintained at all times.

Dry air, whether hot or cold, takes moisture out of foods. Therefore, in properly refrigerating foods it is necessary not only to provide cold to retard bacteria growth but, in addition, proper moisture must be provided to prevent rapid drying out, shriveling, wilting and loss of weight, also loss of nutritive juices and flavors.

As the air circulates in a modern ice refrigerator,

Artisana Water

A Superior
Table Water

PURE

SAFE

SOFT

ACCEPTED AMERICAN MEDICAL ASSN.

Artisana
Green Seal
DISTILLED

ARTISANA WATER CO.
Phone 9-6297

Miss Gulland's
PETER PAN SCHOOL

Nursery - Kindergarten - Primary

Day and Boarding School

18 Mos. 10 Yrs.

FRANCES GULLAND, A. B.

2019 North Ninth St. Phone 3-6018

Phoenix, Arizona

Drs. Faris, Hayden and Lindberg

115 South Stone Avenue
Tucson, Arizona

Therapeutic Radiology

Diagnostic Roentgenology

General Pathology

Special attention to Diagnosis and Treatment of Cancer
and Allied Diseases

EDWARD M. HAYDEN, M. D.

HERVEY S. FARIS, M. D. A. LUDWIG LINDBERG, M. D.

PACIFIC MUTUAL NEWS

By Frank B. Schwentker

1937 was a good year for the big life insurance companies. New business was about back to normal, the death rate was below the average and interest earnings were ample to meet reserve requirements.

Annual financial statements are usually prepared by the company's own actuaries. But our President employed the internationally known firm of Certified Public Accountants, Haskins and Sells, to verify our annual statement figures. This firm in turn employed Woodward and Fondiller, Inc., Consulting Actuaries of New York City, to verify the reserve requirements and other technical aspects of the business. We are therefore in the enviable position of having our statement checked and double-checked by the highest reputable authorities.

And here are some high points of our triply verified annul statement:

Assets: $227,378,108.52, a gain of $2,725,047.51. The liquid condition of the Company was shown by the fact that cash on hand plus U. S. Government securities amounts to over $36,985,000.00.

Surplus, Capital and Investment Contingency Reserve totaled $8,838,660.00, an increase of $1,994,378.00.

Mortality, or death rate was 55.7% of the "expected mortality" (average for five preceding years was 60.1%).

Net rate of interest earned on total assets 3.95%.

Total Life Insurance in force $606,336,232.00.

Total Company income $38,862,184.00.

Dividends on Participating Life policies increased 25% effective May 1, 1937.

And I am glad to add that results during the first four months of 1938 show a fine improvement in every way over the same four month in 1937. The "business recession" has not hit us—at least not as yet.

Write for our complete annual statement.

F. B. S.

The F. B. Schwentker Agency
711 Title & Trust Building
Phoenix, Arizona

The Schwentker-Bruce Agency
915 Mills Building
El Paso, Texas (Adv.)

it comes in contact with the thin film of water, which covers the ice. If the moisture content of the air is low, it absorbs moisture from the ice; if the moisture content is too high, the air deposits moisture on the cold surface of the ice. Thus, the air in a modern ice refrigerator is kept properly humidified—just moist enough to prevent excessive dehydration of foods. And, as a consequence there is no need to keep foods in covered dishes.

In the process of becoming chilled, foods give up their warmth to the air surrounding them. During this process, and during storage, the odors and gases which normally are given off by the foods are absorbed by the air (See Refrigerating Data Book 1937). It follows, then, that a supply of freshly-chilled, pure air must constantly replace the odor-laden air if an undesirable mingling of food flavors is to be prevented.

In the modern ice refrigerator, air is constantly circulating through the food compartment absorbing warmth and the odors and gases thrown off by the foods. When the air returns to the ice compartment, the odors and gases are absorbed by the film of water on the surface of the ice. Then the water passes down the drain, carrying the odors and gases harmlessly out of the refrigerator. Thus, there is no mingling of food flavors in a modern ice refrigerator. "Delicate" foods may be kept safely *uncovered* in the refrigerator with such strong odor foods as cheese, cabbage, melons, etc.

In the new-type ice refrigerator a single servicing of ice lasts three to five days or longer. Thus, there is plenty of *pure*, hard-frozen ice on hand for cold drinks; and for emergencies such as when an ice pack is needed to relieve a headache or to reduce swelling.

Comfort Cooling

In addition to protecting foods and medicines, chilling drinks and alleviating aches and pains, ice now serves the doctor in another way—it provides a cool, comfortable atmosphere in which to work and play. In many hospitals ice air-conditioning units cool operating rooms ,making the doctor's surgical task more pleasant and efficient. In some hospitals, ice air-conditioning units are available to cool the rooms of patients—bringing them more comfort and aiding their recovery.

The hay fever sufferer can be relieved considerably if he spends a portion of his day in an air-conditioned atmosphere. An ice room cooler in the patient's office or bed room eliminates much of the misery connected with hay fever.

And in the doctor's office an ice room cooler (or a permanent installation depending on the size of the space to be cooled) increases the comfort and efficiency of the occupants. And it helps the doctor's practice because his patients actually enjoy coming to a *cool* office!

WILBUR H. ASBURY.

YOU WILL LIKE

BONITA REST HOME

"On The Desert"

out where the air is just a little more clear and dry, out of the dust and noise, but yet only 8 miles from the center of the city.
Here you can get rest, get the best of care while you are convalescing A nurse is always in attendance, and we believe our meals are the best.

DON'T FORGET:
While our home is on the desert, we are strictly modern, even to the extent of gas heat, and our rates are reasonable. Write or call, Mrs. M. H. Copeland. Phone 9-6584. Rte. 6, box 953, Phoenix, Arizona.